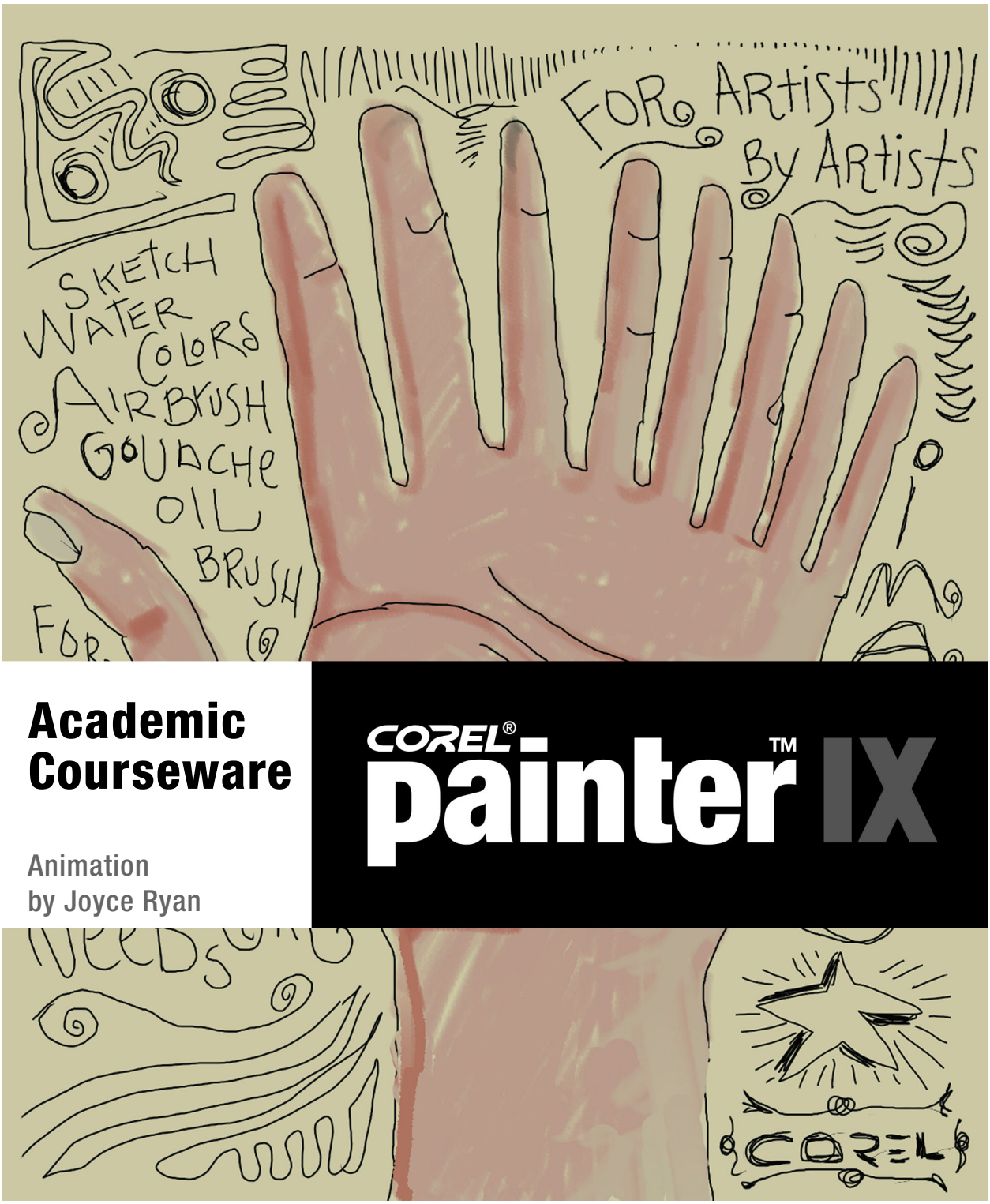

Academic Courseware

COREL® painter™ IX

Animation
by Joyce Ryan

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Foreword

In 1972, I got my first taste of "computer art." My husband John and I were students at the Rhode Island School of Design. John got involved in an experiment at the Rhode Island School of Design, and Brown University had started to encourage art students to collaborate with computer science students. John was led into a frigid room that housed gigantic machines that seemed to eat punched cards for fuel. Most of the artists in the program quickly lost interest. The thought of feeding punch cards in, one at a time, to plot out a black-and-white drawing made of alphanumeric characters didn't seem all that appealing. John, who was studying Graphic Design at the time and liked anything to do with turning type into pictures, thought this might have some real potential. He ended up using all of his allotted time and most of the other artists' time as well. In those days it cost several hundred dollars an hour to use the computers.

Moving forward to the mid 1980's. I was working with Washington University to develop a program of study that would introduce artists to computers. John and I were the only artists they had ever heard of who had any involvement with computers. I was already going to attend Siggraph, so I kept an eye out for some software that would meet the needs of such an academic program. I saw the big 3-D modeling systems, but was most impressed when I came across the first "paint" system I'd ever seen. It was by a small company called Time Arts, Inc. and it used a pressure-sensitive tablet with a special graphics card that allowed the computer to display 256 colors. Far beyond the punch cards from college, I could now actually draw and paint with the computer, and in color! This was the tool I needed to start my program at Washington University. As excited as I was, that was about how unimpressed the arts faculty were with the idea of drawing and painting on a computer. My program got a lot of criticism for being "unnatural" or superfluous. One or two brave souls came around, but mostly the faculty could not imagine why anyone would want to try to make art with a computer.

I threw myself into learning this software inside and out, and was learning even more by teaching my students. This was the beginning of the computer graphics program in the art school at Washington University. The more I learned, the more I wanted to meet the people

who had written this wonderful software. I had ideas for tools I wanted them to make especially for animators. My next stop was the Time Arts offices in Santa Rosa, California, where I first met, among many talented artists, programmers and engineers, John Derry, who was destined to become one of the co-creators of Painter. The people I met were pursuing a goal—to replicate natural media with a computer. I fell in love with their work, made some of the best friends of my life, and eventually joined the company in an 8-year relationship, first as a software reseller, then eventually as an animation consultant, software trainer, demo artist and interface designer. I wanted to take what I knew about conventional animation techniques and apply it to the computer. It has been my passion ever since.

Jump ahead again and it is now 2004 and I am teaching Digital Ink and Paint at the Art Institute of Atlanta. I am demonstrating Corel® Painter™ to my class. I ask my students how many of them remember seeing the scene in "Willy Wonka and the Chocolate Factory" where the children are shown lickable wallpaper. Willy Wonka excitedly tells them to lick the wallpaper, that the strawberries taste like strawberries, the pineapple tastes like pineapple, and the snozzberries taste like snozzberries—but the children had never heard of or tasted "snozzberries." The snozzberries had to be magic. I then showed my students the watercolor brushes in Painter that acted like watercolor, the chalk that acted like chalk, and then the brushes that acted like nothing they had ever seen before. The Image Hose that painted with donuts. The brush that painted with metal. And how it could all be used to make animation. For that moment we were all as excited as children tasting "snozzberries" for the first time. The fruit not from a bush or a tree, but from an inventor's imagination!

I wish to thank my husband John for contributing so much of his artwork and support while I was writing these chapters. I want to thank my son Lucas for his comments and insight. I want to thank my students at the Art Institute of Atlanta for letting me test my tutorials on them. I want especially to thank all the good people at Corel who supported this book and who continue to develop Painter, pushing the envelope of what it can do. They just keep making it better—it must be magic.

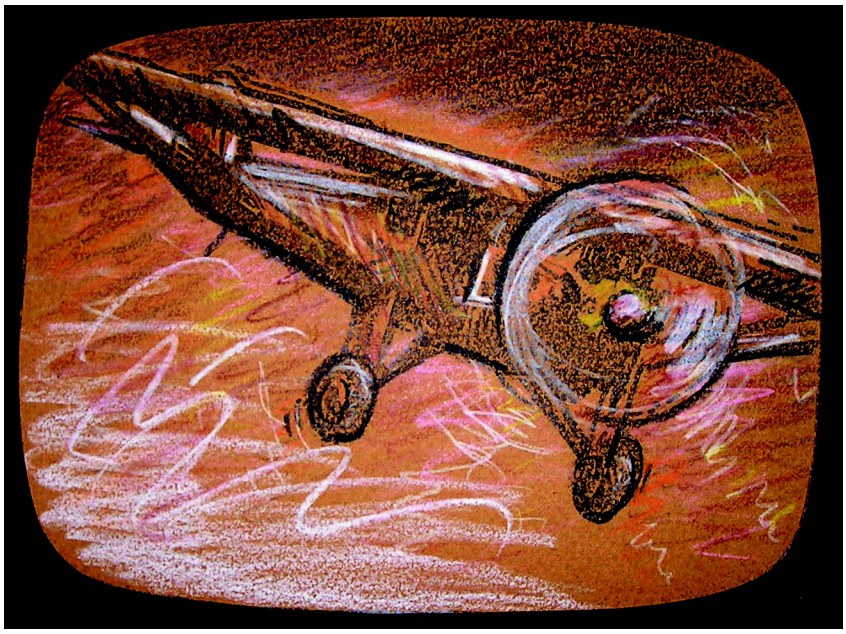
Joyce N. Ryan, 2004

Chapter 1

Jargon 101: The Technical Terms Every Animator Needs to Know

Before beginning an animation project, you must consider the final format your work will be displayed in. Are you working for film, video, or the Web? Will any of the animation frames ever need to be resized for print? Setting the correct size, shape, and resolution for your project from the start is critical to its success.

Always check to make sure you are working at the right size before starting any project. Check the preset sizes in your editing software, or talk with your video editor, film editor, Web developer or service bureau.

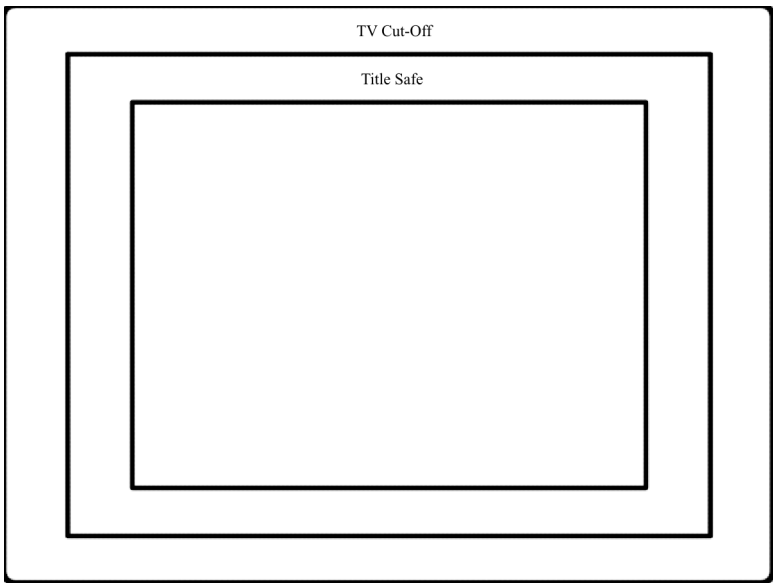


Storyboard panel formatted for television.

Typically, if you are working for film and video, you might work at 720 x 486 pixels (standard NTSC video). If you are making an animated comp in QuickTime®, or an AVI to run on your computer, 320 x 240 usually works well.

TV cut-off and safe titling

If you are creating animation for television or film, you must make sure that your type is not cropped by the shape of the screen, and that nothing vital in your image is lost. The rule of thumb for layout purposes is to crop a 12-field layout, 1.5 inches all around for TV cut-off, and 2 inches around for title safe.



TV layout based on a 4:3 aspect ratio indicating TV cut-off and title safe for a standard NTSC (National Television Standards Committee) television broadcast.

A field guide or "graticule" helps the animator plan a layout. 35-mm film layout is based on a proportion of 1:1.376 (known as the Academy Ratio). This typically yields a size of 12 x 8.72 inches. For television, this format varies slightly. Typically, an aspect ratio of 4:3 corresponds to the NTSC standard. The degree to which TV cut-off crops the field depends on the make, model, and age of the TV set.

Scanning for animation

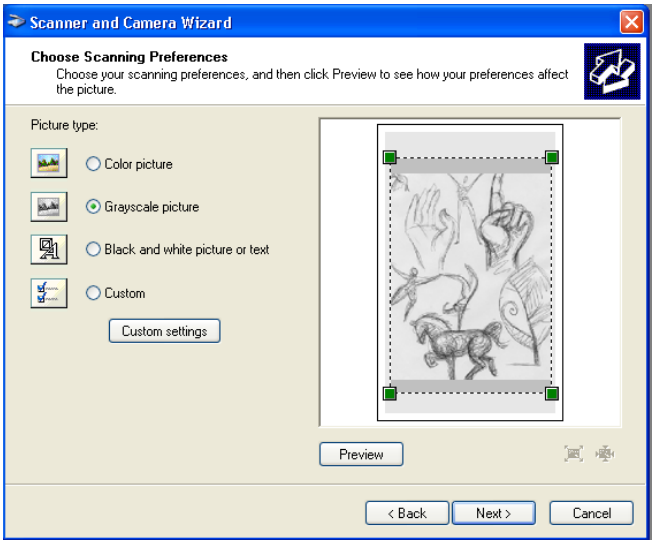
If you draw your animation by hand, you will have to scan it into Corel Painter. Your drawing should be created at the correct dimensions (width to height) for your animation. Ten seconds of animation at 30 frames per second can translate into 300 drawings if you create one drawing for every frame of video. It is critical to scan efficiently to handle that volume of artwork. If you are scanning in art to use as final renderings in your animation, you will scan at 72 dpi in RGB at 720 x 486 for NTSC video. However, if you are scanning in to trace, reference, or make a rough pencil test of your motion, get into the habit of scanning at 72 dpi in grayscale, so that your files are small and scan quickly. Depending on your drawings, you may even scan them in as black-and-white line art; the drawings will look jaggy, but if you are only using them as reference to trace from in Corel Painter, that is all you need. This will give you files that take up the least amount of storage space on your computer.

Tape an animation peg bar to your scanner, so that all your drawings are scanned in perfect alignment (registration) to one another.

Each scanner has a different interface, so you may have to explore a little to find the settings you need.

If you have to increase the size of an image, the best place to do that is on the scanner; blowing up a bitmap in a software program is always a bad idea.

What size should you work at? That depends on your finished product. Will the artwork ever be used for other purposes? Remember, it is always easy to make the image smaller, but it is very difficult to make it bigger.



"Paint" = Bitmaps, "Draw" = Vectors

Computers handle images in two ways: as bitmaps, or as vector images (also known as object-oriented graphics). When working with objects and vectors, the computer keeps a "display list" that describes a series of points in space and their attributes.

The rough draft for the fish was done in Corel PHOTO-PAINT®. Once the client approved it, the image was recreated with shapes so it could easily be resized for various uses.

The finished design created with vectors.

Unlike vector images, bitmaps cannot always be easily resized without loss of quality.

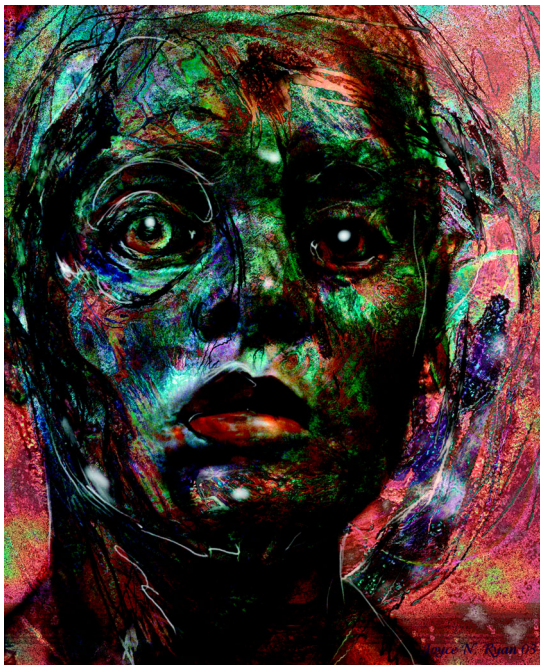
Bitmaps are resolution-dependent. If you blow up pixels, they just look more obvious.

Note what happens to the letters when they are blown up. It is all right to reduce a bitmap, but it is almost never acceptable to enlarge one.

Understanding vectors

A vector is a mathematical description of a location in space; as such, it has no actual size. Images described by vectors are resolution-independent. They can be rendered at any size and maintain their image quality. The image file only contains a list of vectors and display properties, making vector-based (object-oriented) files very small compared to bitmaps. Eventually, the file has to be converted to a bitmap output. When it is sent to a printer, the raster image processor

(RIP) usually handles that task. The display adapter in your computer interprets the image as a bitmap of pixels on your monitor. Some "Paint" programs like Corel Painter and Adobe® Photoshop® let you import vector graphics and turn them into bitmaps ("rasterize" them) so they can be embellished with paint effects. Corel Painter combines the best of both worlds by letting the artist work with both bitmaps and vector-based objects.



An image like this one would be impossible to create with vectors.

Vector-based graphics are easy to resize with no loss of quality. However, they tend to have a somewhat flat graphic style to them. If you want a painterly look, you will not be satisfied with working only with vectors.

Understanding bitmaps

Everything in graphics output eventually becomes a bitmap. Bitmap files are large! They have to be—the computer must keep track of the color values of every pixel that makes up the image, not just vectors and attributes. Bitmaps are also resolution-dependent. If you blow up pixels, they just look more obvious. To make a bitmapped image large and smooth, you have to have a finer grid of pixels defining the image. For best results, you must create your image at the correct resolution, or higher.

A bitmap is a rectangular grid of dots used to describe an image. It has four basic characteristics:

- Dimension
- Resolution
- Bit depth
- Color model

Resolution

The word "resolution" can be used to describe different things.

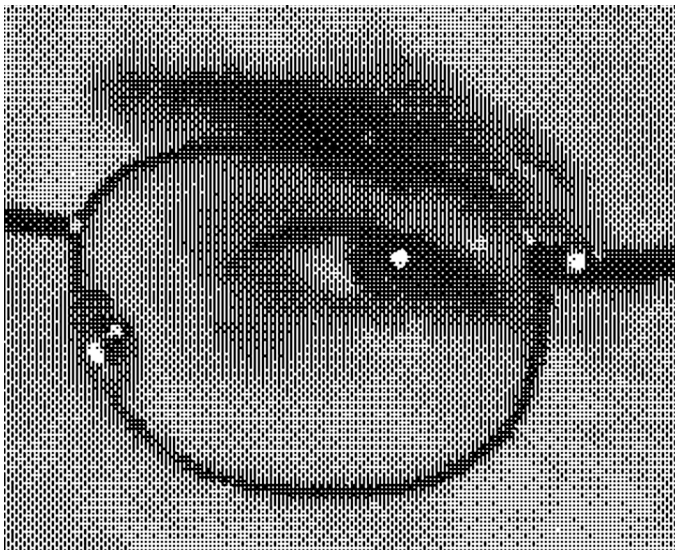
Spatial resolution — describes the dimensions of an image in width and height.

Color resolution — often referred to as "color depth" or "bit depth"; refers to how many colors are available to define the image.

Scanner resolution — refers to the number of dots per inch (DPI). If you have to enlarge an image, it should be done on the scanner and not in Corel Painter. DPI is also used for the resolution of printers, describing how many dots per inch the printer can apply to the paper.

Screen resolution — refers to the number of pixels per inch (PPI). Computer monitors can be set for different screen resolutions. The setting determines how many pixels the monitor can display. A large monitor can accommodate a high setting. A small monitor may be easier to see at a lower setting.

Line frequency — also known as "screen frequency"; refers to the number of lines per inch (LPI) that a halftone screen uses to break down a continuous tone image into printable dots for reproduction on a printing press. Low line frequency (large dots) is used for porous papers like newsprint. Coated stock can hold more detail and can take a higher line frequency. Always ask your service bureau what LPI you should be working at.



An image must be broken into dots with a halftone screen to print on a commercial printing press.

When you are creating an animation with Corel Painter, consider

- the type of animation you are producing,

Some software, games, and Web sites will stipulate the ideal settings for your monitor, so that you can see the images as they were intended.

So how do we understand all these different references to resolution? It's all about dots—the dots just come in different flavors! Whenever people are talking about "resolution," they are talking about a grid of dots that are assigned or mapped to a given space, usually measured in inches or centimeters. The more dots you put in an inch, the more detailed the image will be—it will have a "higher rez."

- the requirements of any systems that will process the animation when you are finished with it in Corel Painter,
- the final delivery medium of the animation (video, film, Web, CD, QuickTime, AVI, etc.).

Dimensions or spatial resolution

Bitmaps have two dimensions. They are grids containing picture elements (pixels). The dimensions of a bitmap are described by the number of pixels the bitmap is high and the number of pixels the bitmap is wide.

spatial resolution = width x height

The PPI doesn't tell you anything about the actual size of the grid.

The spatial resolution of a bitmapped image is based on how many pixels in the grid make up each unit of measurement. In Corel Painter, you are working in pixels per inch (PPI). In other words, if you have a one-inch grid, how many pixels is this grid broken up into: 72, 96, or maybe 300? Which would look sharper and have more detail, the 1" grid described by 76 pixels or the 1" grid described by 300 pixels?

Compare resolution and zooming

Look at an image file and note its resolution. Let's say it is 720 x 486 pixels and has a resolution of 72 ppi. Zoom in on it 200%. It looks twice as big, but it is still only 720 x 486 pixels. You have made the pixels of the grid look bigger, but you have not added more pixels to the grid, so the resolution has not increased.

Increase screen resolution

Increase the resolution of your monitor to see what happens. The icons on your desktop look smaller. Why?

PC's typically default to 96 ppi, and Macintosh® computers default to 72 ppi. Television sets default to 72 ppi. A liquid crystal display (LCD) screen may be set brighter than a cathode ray tube (CRT) one. Apple® computers typically default to a brighter screen gamma than PC's. When designing for the Web, developers typically test their work on both platforms. If you are working in video, you will also want to look at your work on a video monitor.

Color resolution

A bit (binary digit) can describe two states: on and off, black and white, 0 and 1, etc. If 1 bit = 2 colors, 2 bits give you 4 colors, and 8 bits give you 256 colors. That's 2x2x2x2x2x2x2x2 = 256, or 2 to the power of 8 (2^8). At 24 bits of information, you have over 16.7 million colors to work with. Each pixel is made of three components: Red, Green and Blue, or RGB for short. We have 8 bits of color for each component, or 256 levels of Red, 256 levels of Green and 256 levels of Blue. Multiply 256 x 256 x 256, and you get 16,777,216 colors. You now know why Corel Painter and other software programs display RGB in values of 0 to 255. If each of the three RGB colors has 8 bits, the image needs 24 bits

There is an important difference between displayable and definable color. If you have 24 bits of color, you can define over 16.7 million colors. If your display is set for 1024 x 768, you only have 786,432 pixels, so you can only display 786,432 colors out of a possible 16.7 million.

for all the colors. But what does it mean when you are working with a 32-bit image? What are those other 8 bits for, if they're not needed to display the RGB colors? They are used for transparency. Certain file formats support "alpha channels." Having an 8-bit alpha channel means that you can have 256 levels of transparency in your image. Color resolution, or bit depth, affects not only the file size (fewer colors means fewer bits), but also the smoothness of the color gradations in an image.

This image has excellent color resolution.

Here is the same image using only 60 colors (it has decreased color depth). Look closely at the green boat and the clouds; notice how the colors are simplified. This effect is called "posterization."

A common trick used to save on file size is to lower the color resolution of an image. Depending on the image, it can be hard to tell the difference between an 8-bit image and a 24-bit image on the screen.

This TIFF file takes up 600 KB of storage space.

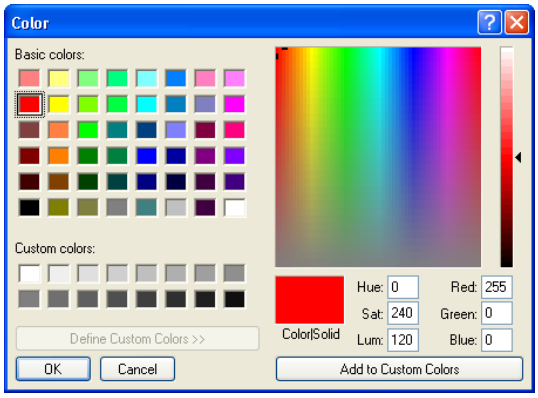
This GIF file takes only 60 KB of storage space.

Compare output colors

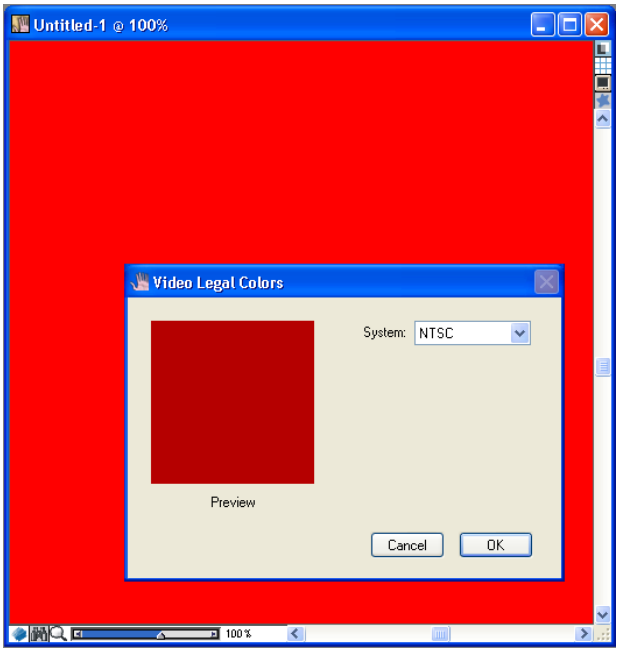
Let's look at an image at different bit depths in Corel Painter using the GIF file format.

1 In Corel Painter, open a new file, 100 x 100 pixels at a resolution of 72 ppi.

2 Set the paper color to pure red in the RGB values by setting the red to 255 and the green and blue to 0.



3 Go to Effects > Tonal Control > Video Legal Colors. Choose NTSC. Notice how different the red looks in NTSC.



NTSC (National Television Standards Committee) is often jokingly referred to as "Never Twice the Same Color." Video can't display the pure bright red you see on a computer monitor. That is why you want to look at your work on an NTSC monitor if you are working for video. Corel Painter has a special filter that ensures your animation will be compatible with both NTSC for the U.S. and Pal (Phase Alternation by Line) for European video systems.

When you have finished making a movie, you can also run a script in Corel Painter that will apply the NTSC filter and convert your movie to video-safe colors.

Visually reduce the number of colors in an image

1 Choose File > Save As and name your image file. Choose the GIF file format, and click Save. Click OK to dismiss the layer warning, if displayed.

2 In the Save As GIF Options dialog box, in the Number of Colors area, choose 256 colors. In the preview window, the image appears in 256 colors.

3 Change the number of colors to 128. In the preview window, the image appears in 128 colors. Continue reducing the number of colors

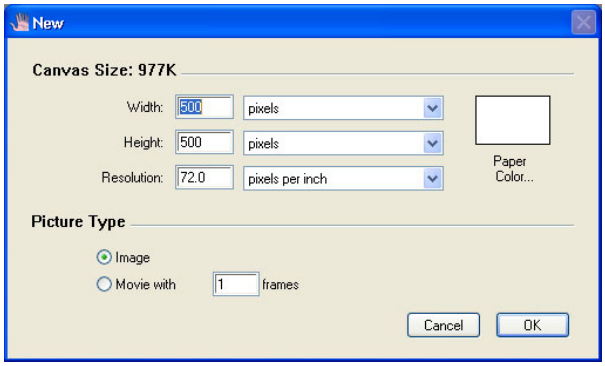
in the graphic until you find the minimum number of colors necessary for adequate display of your image on a Web page.

4 Choose an Imaging Method. Choose Quantize To Nearest Color if you want Corel Painter to look at each pixel for which it doesn't have the exact color and pick the nearest color for it from the available colors. Choose Dither Colors if you want Corel Painter to apply a pattern to the colors chosen to generate a more accurate, less banded result. In this case, Corel Painter will approximate the color of a larger area of the image, rather than individual pixel colors.

5 You can now either save the graphic to use it on a Web page, or return to Corel Painter to continue working on the image.

Resolution for video

In Corel Painter, when we start a new file, we see a dialog box that requires us to enter a resolution in pixels per inch (PPI), or pixels per centimeter. These pixels represent the number of blocks per inch making up the grid of the bitmap. In video, the default screen resolution is 72 ppi. In addition, it is critical to know the width and height, or spatial resolution necessary for the format you are working in.

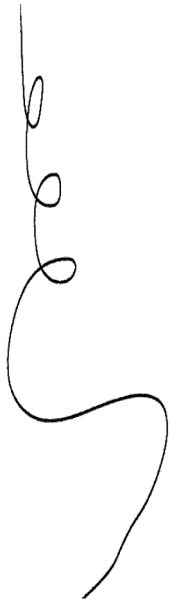


Resolution for print

The RGB model can describe 256 levels of gray. Remember those gray scales you did? How hard it was to create a gray scale with ten steps, with twenty? Look at this grayscale strip—it is made of 256 levels of gray. Can you tell the difference between all 256 shades of gray?

Most job printing presses can't reproduce much more than 100 levels of gray. Fine printers can do better if they use top quality materials and papers, and highly controlled press conditions.

If you have your own printer (ink-jet, laser, etc.), you should know the printer DPI. If you don't, check your printer documentation or the printer properties, or check with the manufacturer. If you are using a service bureau, they should tell you what LPI to work at—ask! If they don't know, use a different service bureau!



Create a grayscale gradient

In Corel Painter, open a new file, 640 x 100 pixels at a resolution of 72 ppi. Fill it with a grayscale gradation from white to black. How many shades of gray can you see? Zoom in on the gradient and examine it closely.

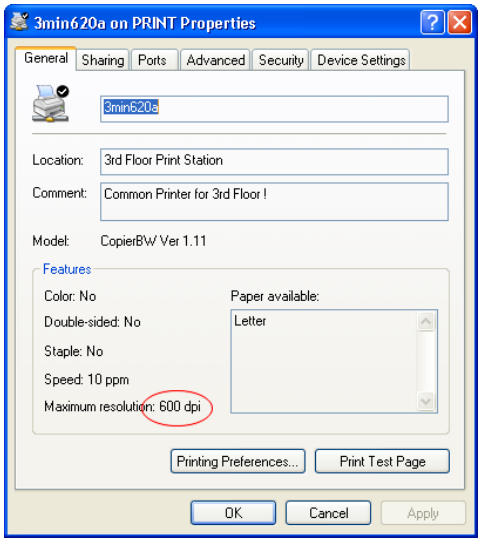
The rule of sixteen

Let's say you want to print out your storyboard for a big client presentation. There will be several people in the room and you want it to look good from a distance and also upon close examination. A high-quality look is important to impress the client. You created the storyboard at 72 ppi, and it looked fine on your monitor. When you printed it out, it looked awful! What happened? There weren't enough pixels per printed dot to give you a good-looking print. You need higher resolution for print than you do for video. How do you find out how much higher?

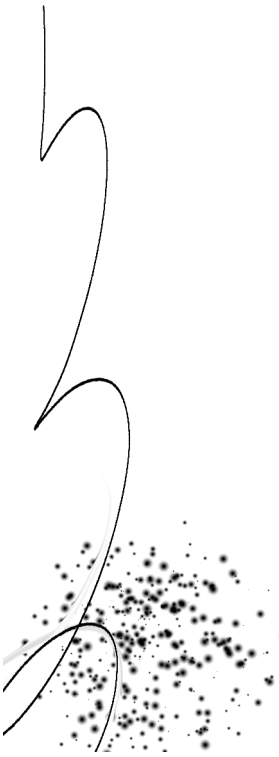
You already know it is possible to display 256 levels of gray in RGB. Now you need to know the highest screen frequency (LPI) you should be working at, given the capabilities of your printer. To arrive at the LPI value, divide your printer DPI by 16 and multiply by 2. Here is a simple example. My ink-jet printer has a resolution of 1440 dpi. If I divide that by 16, 1440 ÷ 16 = 90. The rule of thumb is that I need 2 pixels per printed dot to get a nice-looking image from my printer. I multiply 90 x 2, and set my resolution at 180 ppi. This should give me a full range of tones and a beautiful print on photo glossy paper from my ink-jet printer.

There is no LPI to worry about in video. Video defaults to 72 pixels per inch. The important thing to know is the spatial resolution—the size of the image as measured by its width and height. The screen resolution is going to default to 72 ppi for video and the Web, but you need to know the spatial resolution of your final output, in order to create your animation at the correct dimensions and aspect ratio (the ratio of width to height).

Use photo quality paper for high-resolution printing. It has a coating that enables it to handle more color and detail than plain paper.



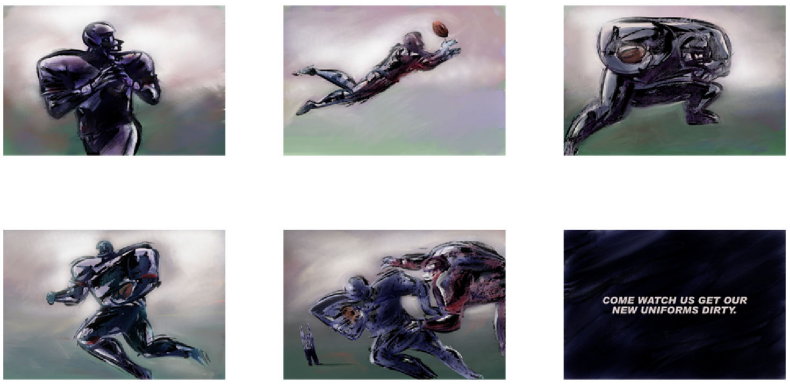
This printer has a maximum resolution of 600 dpi.



Chapter 2

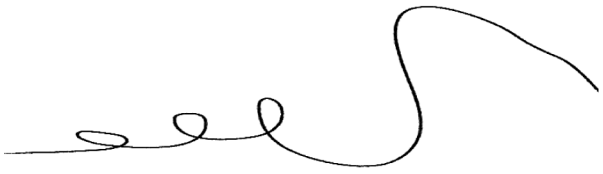
The Storyboard

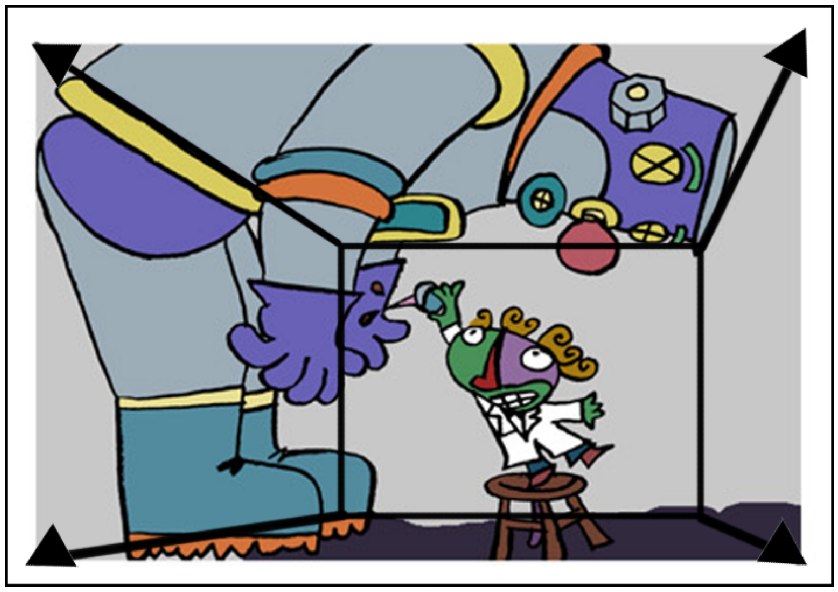
There are two types of storyboards: the production guide and the presentation board. A good presentation board helps you sell the client on your idea. It should communicate the look and feel of the animation.



Presentation board created in Corel Painter using Watercolor variants and the Sargent Brush from the Artists category.

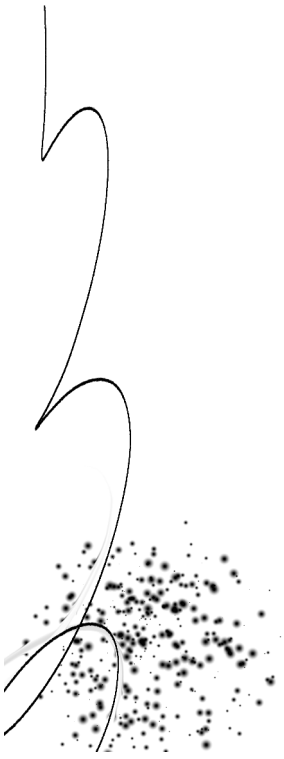
The production storyboard serves as a visual road map for the production crew, making it clear how the animation will work. It should include camera angles, audio cues, zooms and transitions.

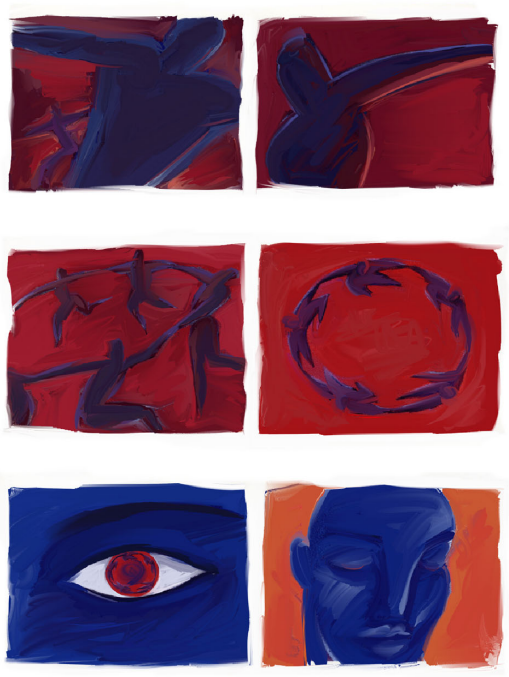




Box and arrows indicate zooming out from a tight close-up.

Created using fills and layers in Corel Painter.
Blur filters were used to create shadow masks.





This storyboard for "Mission Health" was created using the Sargent Brush from the Artists category in Corel Painter.

Working out a detailed storyboard in advance of production helps predict the costs involved in the production. The producer may use the storyboard to estimate costs prior to starting production.

Assignment 1

Storyboarding a 30-second TV commercial for a new radio show

The client wants something memorable that will help establish a brand for a new radio show that will be competing with drive-time talk radio. The show will offer an alternative to the incessant chatter of talk radio by providing long uninterrupted blocks of music interspersed with upbeat or funny stories. The radio station is broadcasting in areas with heavy traffic and long commutes. The broadcast format is aimed at commuters suffering through the stress of traffic, so the station wants to communicate an image that will attract its target demographic group—25- to 38-year-olds whose tastes have been formed by popular culture.

Your job is to come up with a concept that addresses the needs of your client in an entertaining and memorable fashion. You have one week to get a storyboard together to impress the client and win the job.

1 In Corel Painter, create a new file. Set your image size to 720 x 486. (D1 NTSC uses a spatial resolution of 720 x 486 at 72 ppi.)

2 Set the resolution to 180 ppi. The storyboard panels have to be printed out in color for a presentation to the client and the advertising agency for their initial reaction. Therefore, it is a good idea to roughly double the resolution to 150-180 ppi, depending on your printer. This will yield a printed panel that is 10 inches wide by 6.75 inches high.

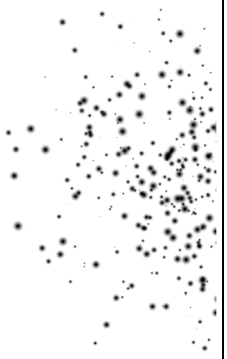
3 Always name your files according to the job you are working on, and keep all the files involved with that job in one folder. In this case, name the file Radio_Panel_1.rif and save it in a folder called Radio_Spot.

4 Pick a tool you like sketching with. Personally, I like the Scratchboard Tool from the Pens category. Experiment with pencils, pens, charcoal and chalk to find the tools you are most comfortable sketching with. There is no "right" tool. If you are painting over a scanned image, you are ready to go.

5 Once you are happy with the sketch, you are ready to begin working with watercolor. Corel Painter automatically creates a new layer for watercolors, so you don't have to worry about painting over your lines.

6 Try laying in a wash of color using the Soft Camel brush variant. Clean up unwanted paint with the Eraser Dry brush.

7 When you are happy with your watercolor, dry the layer and add another layer for more detail. Try colored pencils on this layer to add crispness and finer detail.



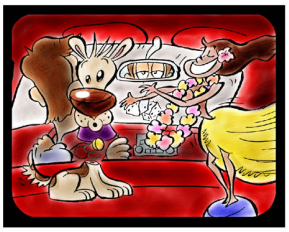
The more you work with Corel Painter, the more you will develop your own techniques.

1

Open on bumper-to-bumper traffic crawling along on a dreary, gray day...

2

...camera zeroes in on a red car...

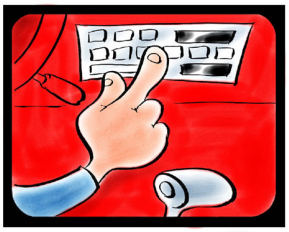


3

...swooping in through the back window...

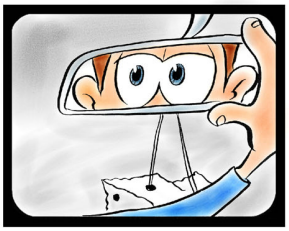
4

...past the bobble-head dog and hula doll...



5

...the driver, Vincent, adjusts the radio...

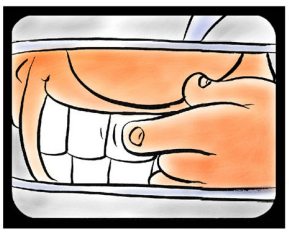


6

...then the rear-view mirror...

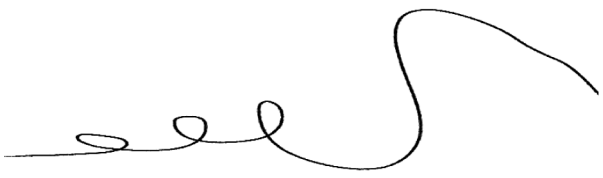
7

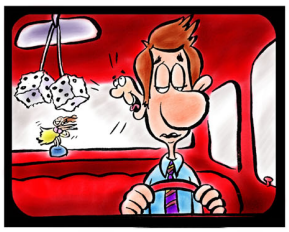
a little tweak to the hair...



8

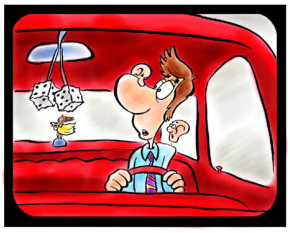
and rub the schmutz off the teeth...





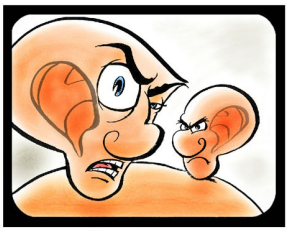
9

Vincent's right ear pulls itself free and hops down from his head...



10

...joined shortly by the left ear. They both scramble up to the top of his nose...

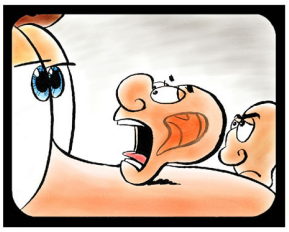


11

and begin to address their concerns to Vincent at point blank range...

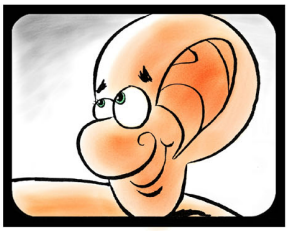
12

Milo starts in, "Hey! What's with the elevator music? You trying to kill our spirit? Sheeesh! You're putting us to sleep with this stuff! Lefty, why don't you tell him what's on your mind, buddy?"



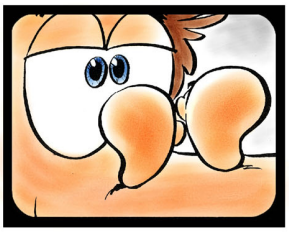
13

Lefty raises himself up to full throttle pose...



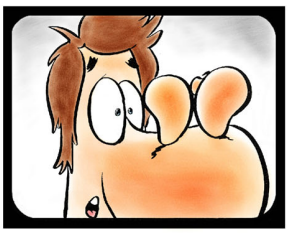
14

"...then deflates... and adds demurely, "Like he said..."



15

Milo: "We've had enough of being treated like a couple of parasites. Things have got to start changing for the better around here, or we're gonna walk!"

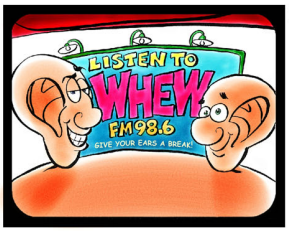


16

(to Lefty) "Stick with me, kid. The trick is to look really steamed. Okay, now we turn in unison and walk off..."

17

As the ears walk to the end of his nose, Vincent yells after them, "Hey! Wait, guys, I didn't hear a word you said!"



18

The ears spring into a bookend pose featuring the billboard for the radio station and the solution to all their problems. Milo: "You know you're really quite a good listener." Lefty: "I'm all ear."

Starring:

Vincent vanGuy as the driver
Milo B. Pierce as the right ear
Lefty as himself

These storyboards were created using the Watercolor brushes in Corel Painter. Before Corel Painter, the artist, John Ryan of DAGNABIT!, says he would have used markers on paper. What he especially liked about using the Watercolor brushes in Corel Painter was that they left his lines undisturbed: "Painter gave me a very facile watercolor look without the fuss and muss of the real thing."

Chapter 3

Digital Ink and Paint Techniques

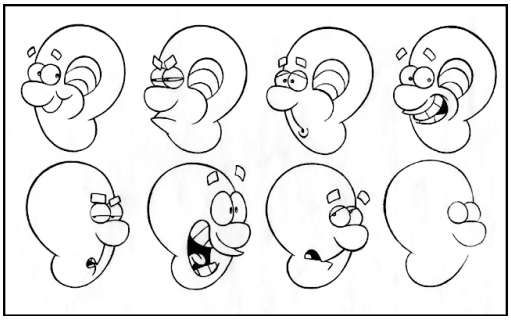
Once your storyboard is complete, it is time to create the art for the animation. You want to create the art as efficiently as you can, and that takes planning. Reusable elements, color palettes, naming conventions, and file folder structure should all be thought out before creating any of the final artwork.

The following is a typical production workflow for a 30-second commercial:

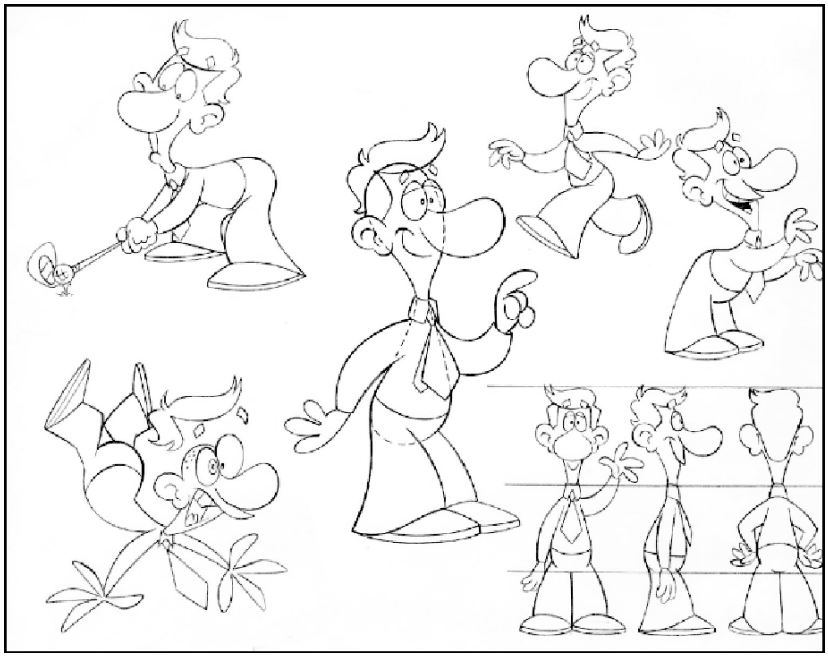
- Create model sheets for all the characters.
- Read the audio track for timing.
- Create an exposure sheet.
- Rough out the animation.
- Complete the inbetweening and backgrounds.
- Pencil-test the animation.
- Clean up and ink the animation.
- Paint the animation.
- Put the finished art together with audio.

Creating model sheets

The purpose of a model sheet is to give as much visual information about the construction of the character as possible. This is especially critical if other animators will be working with your characters. They will use your model sheet as a guide to drawing the characters. It is essential in any animated production for the animator to stay "on model." The characters must be consistent from scene to scene. A good model sheet will give an indication of the character's personality and what the character should look like through a variety of expressions. A full turn of the character helps to visualize it as a three-dimensional object.



Simplifying the character and breaking it down to show how it is constructed helps the animators to maintain the proportions and volume of the character.



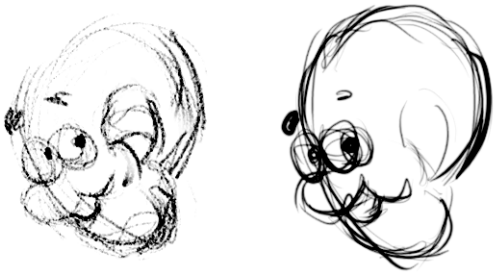
The model sheet serves as a reference for the animators. It is critical they stay "on model" so the character doesn't lose its original look and feel.

Assignment 2

Creating a model sheet for your characters

Using a pressure-sensitive stylus, start sketching with a brush variant that feels comfortable to you. Experiment with a number of brushes and variants until you find the one that fits your sketching style.

It is a good idea to start any sketching session by going to Corel Painter IX > Preferences > Brush Tracking (Mac OS®), or Edit > Preferences > Brush Tracking (Windows®), and setting the sensitivity of your pen. This is especially helpful if you have a light touch, or if you prefer different settings with different variants. Some artists even like to tape sketch paper to their tablets so they feel the "tooth" of the paper.



The first sketch was created with Tapered Artist Chalk 10 from the Chalk brush category. The second sketch was created with Fine Detail Air 3 from Airbrushes.

Once you have your sketches, it is time to clean them up and create the model sheet. You can use layers, or even better, clone your drawing.

1 Clone your drawing (File > Clone).

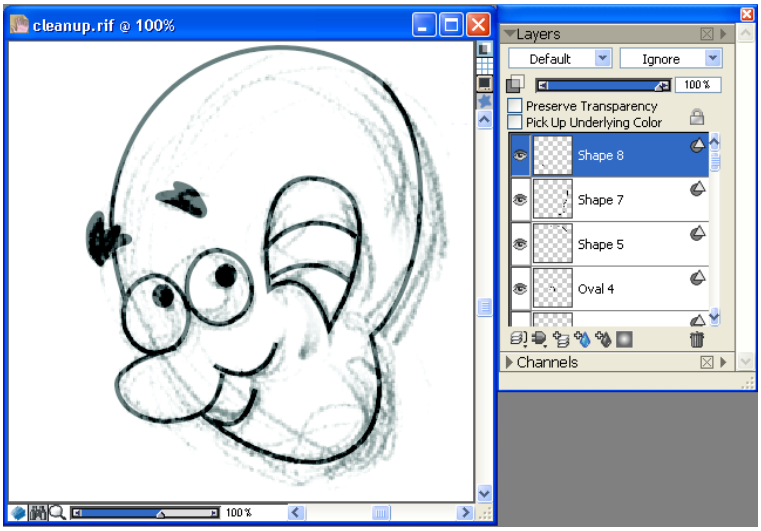
2 Choose Select > All.

3 Delete the image in the clone (press Delete or Backspace).

4 Toggle on the tracing paper by selecting Canvas > Tracing Paper, or clicking the Toggle Tracing Paper button in the upper-right corner of the image window.

5 Trace your sketch using the Pen tools from the toolbox.

6 In the property bar, enable the Stroke check box and disable Fill. Clean up the drawings using the shape tools to get perfect curves.

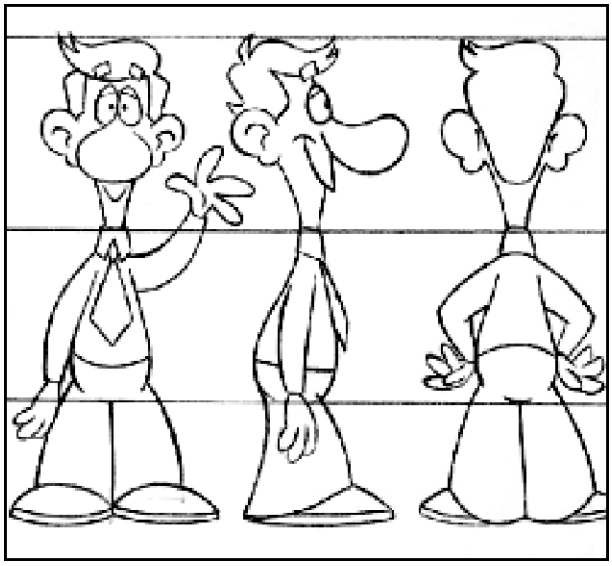


Cleaning up a drawing with shapes has several advantages: Your characters can be easily resized, and parts that move can be created on separate layers and animated separately without you having to redraw the whole character. Shapes are also easily converted to selections, allowing you to add painterly effects.

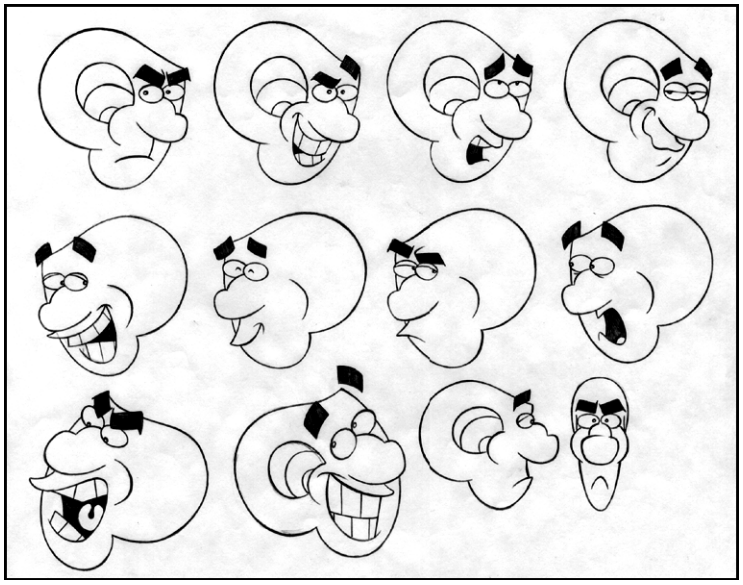
7 Create a variety of expressions for your character that show a full range of emotions.

8 Turn on the rulers and the guides (Canvas > Rulers > Show Rulers and Canvas > Guides > Show Guides), and set guidelines for

aligning your character in the front, side and back views. Use the guides to line up the views of the character.



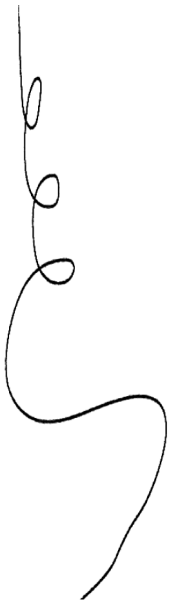
A complete turn-around of the character gives a sense of the character's volume and proportions. It is an invaluable aid to drawing the character from a variety of angles.



A good model sheet helps indicate the personality of a character by showing how that character would experience a wide variety of emotions.

Most artists use reference material as a starting point. Try using a digital camera and the Cloning tools in Corel Painter to create your characters if your drawing skills are not up to the task. The more you work from life, the more your drawing skills are bound to improve.

Make a palette of colors that is specific for the job, so you can stay consistent from frame to frame. You don't want your characters changing colors! You may also have an assistant helping you, who will be working on the same storyboard and will need to use your palette.



Coloring your characters

Corel Painter offers an almost unlimited number of options to paint your characters. Traditionally, animators inked their drawing onto clear celluloid or acetate sheets called "cels." These were inked on the front, then turned over and filled in with special cel vinyl paint on the back. This technique gave a flat matte finish to the paint and kept the ink line intact. Color paints had to be mixed in quantity to assure not running out. Remixing could cause the colors to shift before all the cels were painted. Each color was labeled and keyed to a master painting for reference. Many people were required to paint and, again, they all had to stay on model. Corel Painter makes it easy to both "paint cels" and mix, store and label your colors.

Create a custom color palette for painting your characters

1 On the Color Sets palette, click the palette menu arrow, and choose New Empty Color Set.

2 On the Colors palette, choose a color from the Standard Colors or the Small Colors display (the Hue Ring or the hue indicator). On the Color Sets palette, click the Add Color To Color Set button.

3 On the Color Sets palette, double-click the color to get the Set Color Name dialog box. Name each color to correspond to parts of your character: "face," "teeth," "eyes," "hair," etc. To display the color name, choose Display Name from the Color Sets palette menu.

4 Save your color set with the name of your character by choosing Save Color Set from the palette menu. Anyone who has to paint the "cels" now has the correct colors with which to paint the character.

5 Experiment with a variety of ways to mix your colors. Try sampling colors from an image, using the Mixer palette and the Color Info palette. There is no right or wrong method. Use the technique that best fits your personal workflow.

Practice cel painting in Corel Painter

Cel painting is no longer limited to flat color. With the advent of Paint programs like Corel Painter, the range of techniques used to paint cels is limited only by your imagination. Experiment with different styles to give your work a unique look and feel.

1 Open a new file and copy one of your cleaned-up characters to the file. Save the file and call it ColorRef.rif.

2 Drop the copied layer to the canvas.

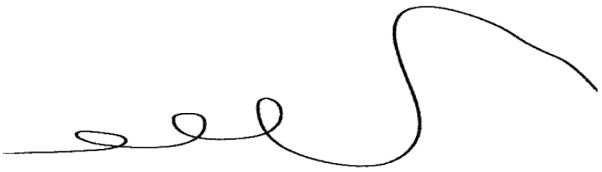
3 Select the black lines by using the Select > Auto Select > Image Luminance command. Copy the lines and choose Edit > Paste In Place to paste your lines on a new layer.

4 On the canvas layer, choose the Paint Bucket tool. Set the Fill to Current Color on the property bar, and fill the drawing with the appropriate colors. Depending on the tolerance and feathering settings, your fill will antialias to the line.

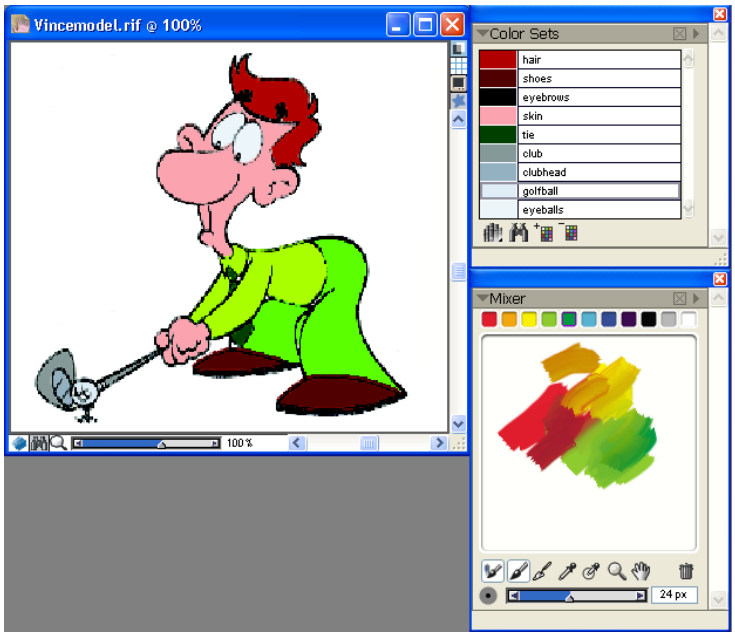
5 Once the fills are complete, set up your lighting using Effects > Surface Control > Apply Lighting. Set your lighting and remember to save it! You now have a painted and shaded cel.

Keeping your line intact on a separate layer lets you control the integrity of your line. You may wish to keep the line or not. You may also wish to change the color of the line to match the painting.

A frame of animation created by John Ryan of DAGNABIT! for the National Black Arts Festival campaign.



Experiment with the many ways there are to mix color. There is no right or wrong way. Corel Painter allows many different approaches to match your personal preferences.



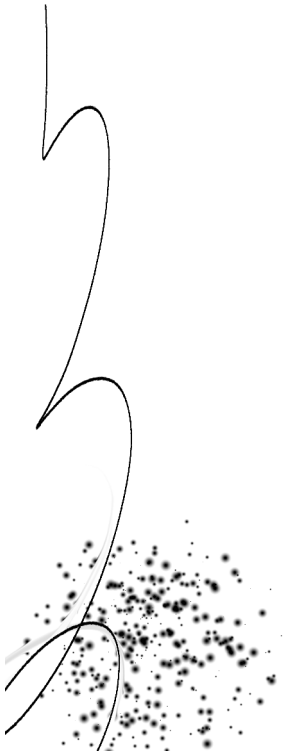
Colors were mixed using the Mixer palette and the Color Info palette, and sampling scanned watercolor studies.

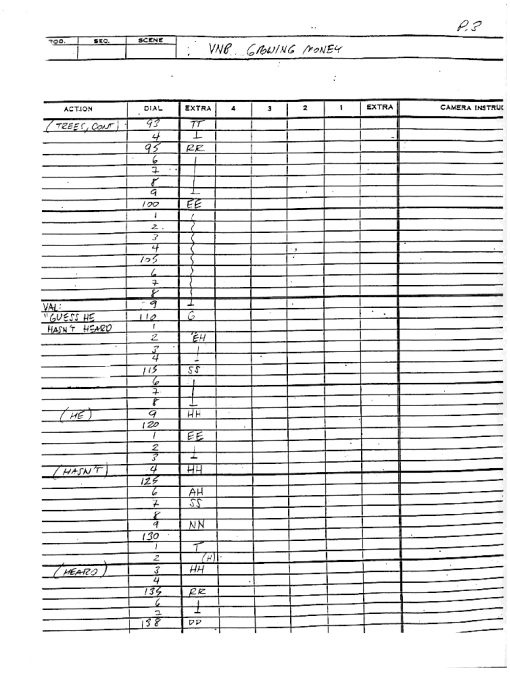
Reading the audio track

If the character is to talk, the drawing of the character's mouth must synchronize with the dialogue. This process is called "lip synching." Although there are many references for creating lip synch, including specialized software, it is critical for the animator to act out the dialogue in front of a mirror. Acting out the dialogue helps the animator bring out the personality of the character. Sometimes there is reference footage of the actor who is doing the voice. The more the animator or actor is in character, the better the reference will be.

The audio track has to be broken down and interpreted on an exposure sheet. This "dope sheet" indicates where the parts of speech (phonemes) occur frame by frame. Good lip synch is an art. Emphasis on specific sounds works better when the action anticipates the sound by a few frames.

Create an exposure sheet or "dope sheet" to track your audio and match it to your animation.





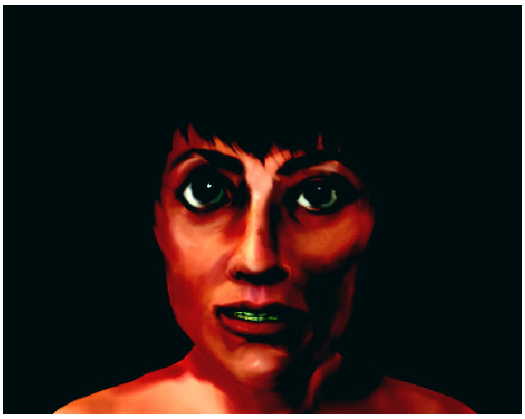
ACTION	DIAL	EXTRA	4	3	2	1	EXTRA	CAMERA INSTRUC
(TREES, COUT)	93	TT						
	4	L						
	95	RR						
	6							
	7							
	8	L						
	9	L						
	100	EE						
	1	(						
	2	)						
	3	(						
	4	)						
	105	(						
	6	)						
	7	(						
	8	)						
	9	L						
VAL: "GUESS HE HADN'T HEARD	110	G						
	1							
	2	EH						
	3	L						
	4	L						
	115	SS						
	6	L						
	7	L						
	8	L						
(HE)	9	HH						
	120							
	1	EE						
	2	L						
	3	L						
(HADN'T)	4	HH						
	125							
	6	AH						
	7	SS						
	8							
	9	NN						
	130							
	1	T (2)						
(HEARD)	2							
	3	HH						
	4							
	135	RR						
	6	L						
	7							
	138	DD						

Sample exposure sheet with indications for lip synch.

Create mouth positions for reference

A ("ehee")

B ("buh")



C ("ss")

Practice lip synching

Make a simple sock puppet. Practice making it talk believably. Try to "speak" your dialogue with the puppet, videotape your efforts and critique the results. How could you have emphasized important sounds? Did you open the puppet's mouth on the vowels or the consonants?

Create a phoneme chart as a custom Image Portfolio

1 Photograph your mouth and chin forming basic phonemes: A, B, C, D, E, F, G . . .

2 Display the Image Portfolio palette (Window > Show Image Portfolio).

Save your phoneme chart as a custom Image Portfolio so you always have reference for mouth positions.

3 To create a new portfolio, click the palette menu arrow, and choose Open Library.

4 In the Choose Image Portfolio dialog box, click the New Library button.

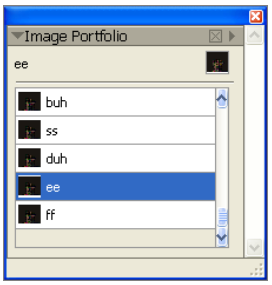
5 In the New Image Portfolio dialog box, choose a location and enter a name for your image portfolio. Click Save.

6 To add an image to the new image portfolio, select a layer, and do one of the following:

- To cut the layer from the current document, drag the image from the document window to the Image Portfolio palette using the Layer Adjuster tool.
- To copy the layer, hold down Option (Mac OS) or Alt (Windows), and drag the image from the document window to the Image Portfolio palette using the Layer Adjuster tool.

7 In the Save Image dialog box, type a name for the image.

8 To use an image from the Image Portfolio, drag it from the Image Portfolio palette to the document window.



Roughing out the animation

Once you have a good sense of when things have to happen and where they hit on the audio track, you can start animating. Roughing out the key poses for your animation is the next step. Some animators like to animate "straight ahead," creating each drawing in sequence. Most animators find it easier to rough out the key poses, then create the in-between drawings for those poses, and then test the motion and add or subtract drawings where necessary. You may find yourself using a combination of the two techniques.

A rough key pose sketched in Corel Painter.

Inbetweening

Producing the drawings "in between" the key drawings is a skill unto itself. Traditionally, one would place a key drawing onto a light box, the next key drawing over it, and then another sheet of paper over that. On the top sheet, the animator would figure out the position between the two key drawings and sketch it. We can do something very similar in Corel Painter using layers.

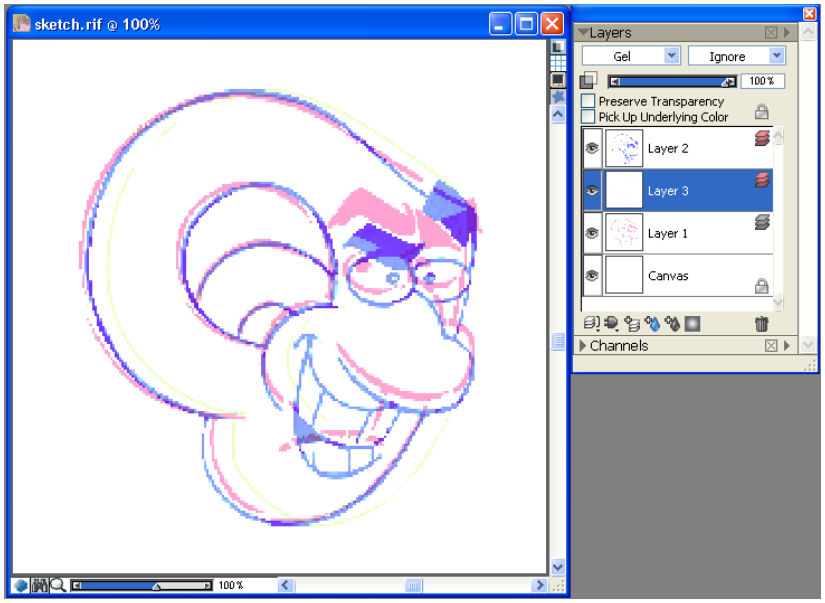
Once you have your key drawings, you can set them up as layers in a file and draw the inbetweens. Insert a blank layer over the key drawings you wish to inbetween, and draw the inbetween. By changing the opacity of the layers it is easy to see the differences between the key drawings. Changing the color of the lines also makes it easier to tell the difference between the keys (you can select the lines using the Image Luminance option and change the colors of the lines in each layer).

Practice inbetweening techniques using layers

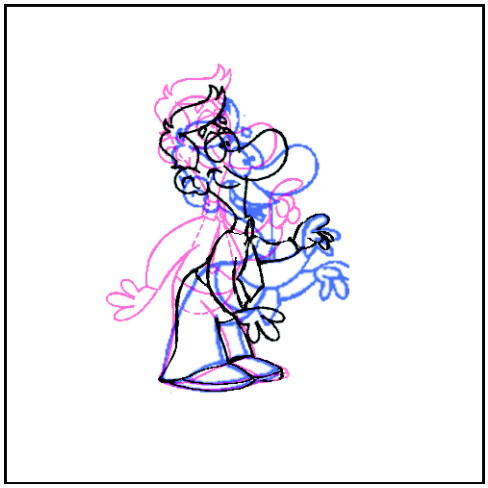
1 Sketch your first key pose on a transparent layer.

2 Create a new layer and select a different contrasting color to sketch with. Sketch the next key pose.

3 Create a new layer and, with another color, sketch the inbetween using the key drawings as reference. Experiment with changing the transparencies of the layers you are referencing.



Example of inbetweening with layers in Corel Painter.



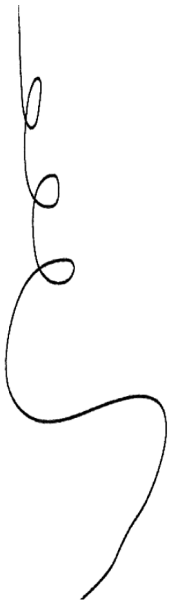
Drawing the inbetween using layers in Corel Painter.

Pencil-test your motion

1 Open a new file in Corel Painter, the same size as your inbetweens. In the New dialog box, set the Picture Type to Movie, and set the number of frames to match the number of inbetweens you have.

2 Paste your inbetweens into separate layers in your movie file.

3 On the first frame of your movie, shut off all layers except the one you wish to have showing.



4 Move to the next frame and turn on the next inbetween, turning off everything else.

5 Repeat until you have an inbetween on each frame of your movie—your layers have become frames.

6 Shut off all your layers.

7 Play back the movie to test your motion.

8 If your computer plays back too quickly, save your movie as an AVI at a frame rate of 12 to 15 frames per second and view the AVI, or save it as sequential TARGA® files to edit in a video editing program. You can also slow the playback down by repeating the above process, but instead of forwarding one frame, try forwarding two or three frames for each drawing.

Pencil tests show you if you have enough inbetweens for fluid motion from one pose to another. There are two ways to change the timing of your animation: Adding more inbetweens will slow things down and make the motion more fluid; holding each drawing for a longer period of time will slow things down as well, but your motion will be choppier.

In video, you work with 30 frames per second. If you have 15 drawings to describe that second, you hold each drawing for two frames. This is referred to as shooting on "twos." If you have a different drawing for each frame, or 30 drawings per second, it is called shooting on "ones."

Getting a feel for timing is a major part of becoming an accomplished animator. Some motion looks better on twos, some on ones, some on threes or more. There is a great deal of animation produced for the Web and television that is designed with far longer holds than twos and that still works quite well for the style of animation.

Tweening

Inbetweening is drawn by hand and takes drawing skill and practice. "Tweening" can be done by a software program and can be a tremendous labor-saving device. Learn how to use inbetweening and tweening to their best advantage.

Practice tweening with Corel Painter

1 Open a new movie file at 320 x 240 pixels and 72 ppi, set for 30 frames.

2 Open another file, the same size but a single image.

3 Choose the Image Hose brush category. Open the Nozzle Selector in the toolbox, click the selector menu arrow, and choose Load Nozzle. Locate the Walkbrush.rif file, and click Open.

4 Open the Nozzle Selector again, and click the selector menu arrow. Choose Add Nozzle To Library, and save the nozzle.

5 From the Brush Selector bar menu, turn on Record Stroke.

6 Paint across the canvas with the Walkbrush.

7 Close the file (there is no need to save it).

8 Return to your movie. Choose Movie > Apply Brush Stroke To Movie. Corel Painter applies your stroke to the frames of your movie.

Chapter 4

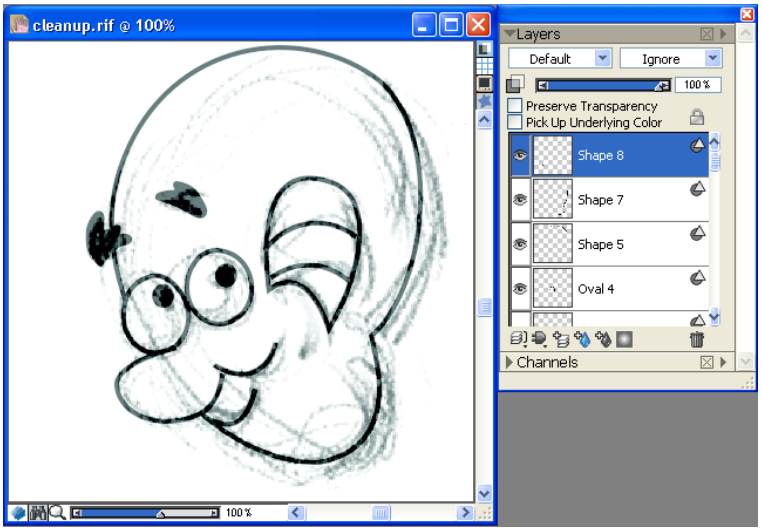
The Background Art

Now that the characters have been drawn, cleaned up and painted, you need to create your backgrounds. Imagine your character is driving along the road. How do you make the view outside his car window appear to move? With a moving background.

Creating a moving background

A "pan" in animation refers to moving a background painting under a camera to create the illusion of motion. In live action, the camera would move, "panning" across a background to create the same effect.

In the following example, the character of Vince is layered over a background of the car interior. The car interior is a simple vector shape that leaves a transparent opening to view the background through.



Next, the background art is created in a file that is much wider than the window. This is referred to as a "pan cel." We are going to move the background across a movie. This will create the illusion of the character moving through the background.

A wide image for the background is the equivalent of a pan cel. It will be moved through the scene to create the illusion of a moving background.

Create a moving background

1 Assume you are creating an animation that is 320 x 240 pixels at 72 ppi. Create a new file that is 640 x 240 pixels at 72 ppi.

2 Paint the background. Once the background is done, click Select > All, and then Select > Float. This moves your painting up on a separate layer above the canvas. Save this file and leave it open.

3 Create a new file, 320 x 240 at 72 ppi. In the New dialog box, under Picture Type, click the radio button for movie, and set the frames to 30. Name the movie Backgrnd.frm.

4 Choose the Layer Adjuster tool from the toolbox, and enable the Auto Select Layer check box on the property bar. Click on the background layer in the document window and drag it into the first frame of your movie. The background is automatically pasted on a new layer.

5 Advance one frame in your movie by clicking the Step Forward button on the Frame Stacks palette. The layer in the previous frame is merged with the canvas. In the new frame, the layer is active. Use the left arrow key to move the background the desired amount.

6 Repeat step 5 until you have completed the movie.

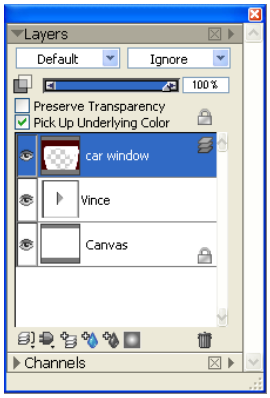
7 On the final frame, remember to either drop the background layer or turn it off before you play back your movie.

8 Play the movie and watch your background move!

Compositing

Next, we want to combine our character with the moving background. This process is called "compositing." To create the composite, start at the first frame of the movie. Open the file that contains the elements you wish to composite. Pull the elements into the movie file. Hold down the Step Forward button until you reach the last frame of the movie, then click Layers > Drop All.

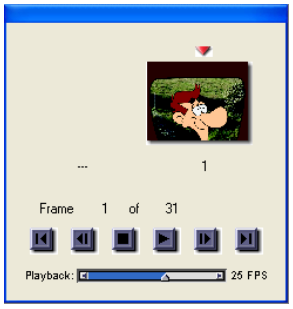
Here is how the composite is created for the Vince movie. First, the movie is set on frame 1. Next, the car window layer is moved into position using the Layer Adjuster tool.



Then the Vince layer is positioned in the same way.

Then the background is added.

Once the layers are in place over the first frame of the movie, the frames are advanced to the end and all the layers dropped.



When the movie is played back, it appears that Vince is driving along in his car. For added realism, Vince can be moved up and down a bit as each frame is advanced to make his ride look a bit bumpy.

The importance of backgrounds

Creating beautiful backgrounds for animation is a career path in itself. The background fills most of the screen. In many cases it does not move (unlike our car window example), so your audience has plenty of time to appreciate the quality of the background painting. In creating an effective background, the mood, lighting and texture are critical.

The background painting sets the mood for the animation. What type of emotional climate does the scene take place in? Is the setting bleak, mysterious, joyful, cheery? How do you express that in your painting? One way to express the mood is through lighting. Corel Painter gives you several options for lighting your scene.

Apply lighting

Open Fields.rif. This scene shows a landscape in mid-afternoon on a slightly hazy day.

You can choose different lighting effects from the Corel Painter library, or you can create your own effects by defining brightness, distance, color, and other characteristics. Once you've produced a lighting effect you like, you can save it in a library for use with other images. Your computer must have a math coprocessor to use the Apply Lighting effect.

Photograph by Joyce Ryan, 2004.

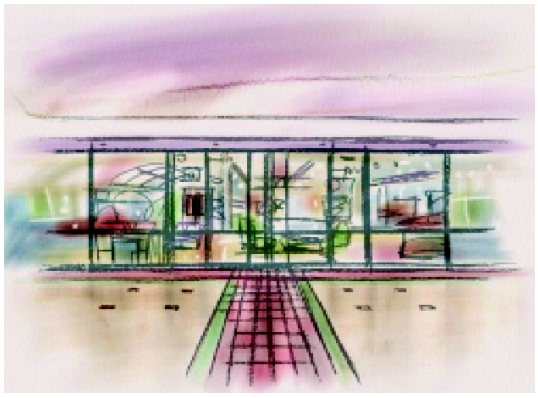
1 Choose File > Clone. Click Select > All, and then press Delete or Backspace to delete the image from the clone file.

2 Using a brush variant from the Cloners category, brush in the background. For this example, I used the Watercolor Wash Cloner. Set your opacity low so that you can build up the effect. Try experimenting with several cloner variants.

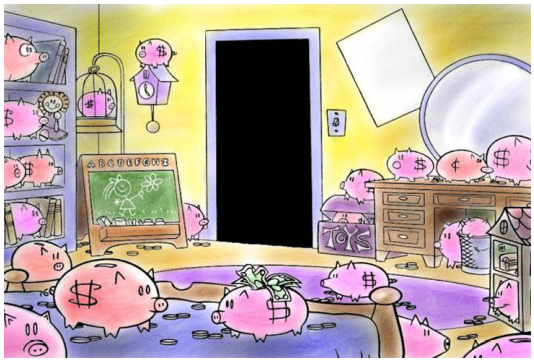
3 Go to Effects > Surface Control > Apply Lighting. Experiment with a variety of preset lighting effects. Try changing the light colors. Try to create a sunny day, a cloudy, rainy day, a night-time look and dawn breaking.

Applying a lighting effect to the background.

Creating the effect of dawn breaking using lighting effects.



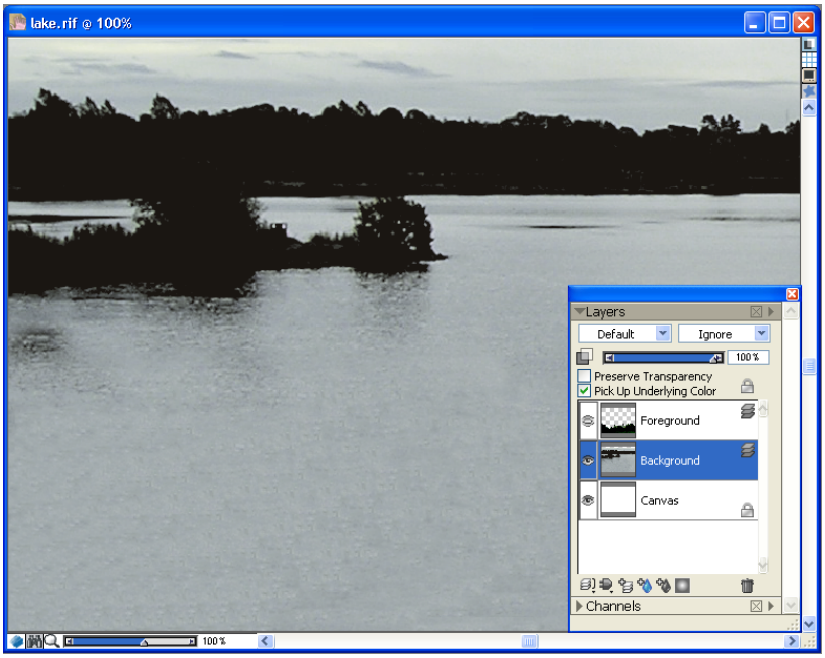
This background for a 30-second commercial was created using brush variants from the Felt Pens and Watercolor categories in Corel Painter.



Animation background provided by DAGNABIT!

Create background depth

Objects that are closer to you appear to move more quickly than those far away. For this exercise, you will make it appear that your background has depth. In this example, the image is separated into two different layers, foreground and background.



The foreground was selected and pasted into a new layer. The lake was cloned to fill in the foreground.

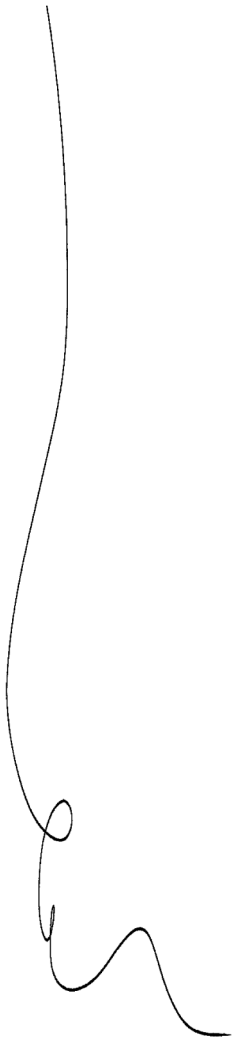
1 Create a background image with two layers, foreground and background.

2 Open a new movie file, 640 x 480 at 72 ppi and 10 frames in length. Using the Layer Adjuster tool, place the background layer onto the first frame of your movie.

3 Press the left arrow key 4 times, forward to the next frame and repeat until you reach the final frame. Drop the layer.

4 Next, place the foreground layer in the first frame of your movie. Repeat step 2, only this time press the left arrow key 8 times within each frame to make the foreground layer move faster.

5 Save your movie at different frame rates and play it back to see the effect.



Assignment 3

Creating a moving background

Create a multi-level moving background based on a scene from your storyboard. Pay close attention to the lighting, mood, texture and perspective. Make sure the style of your background complements your characters. Combine your characters with the background to complete a short segment of your animated storyboard.

Chapter 5

The Write-on

Every animator at some point in his or her career is going to have to create a "write-on." A write-on is a word or an image being magically written across the screen. In this chapter, we are going to explore several techniques in Corel Painter for creating different styles of write-on.

We will create a write-on for the name of a radio station. My radio station is called WHEW! 98.6 FM. I want to give the WHEW! a shiny cloud-like 3-D effect that appears over a background of sky and softly floating clouds.

Create the background

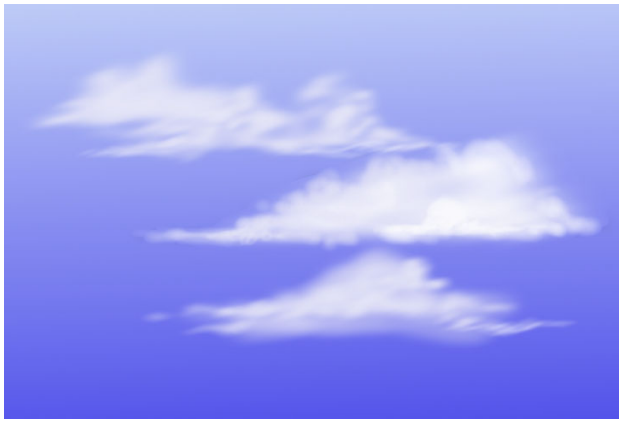
1 Open a new file, 720 x 486 at 72 ppi. Create a gradient from dark blue to light blue for your sky and save it. Fill the canvas with your gradient.

2 Choose Select > All, and then Select > Float. Name the new layer Sky.

3 On a new layer labeled Clouds1, try using Airbrush variants to create some clouds. I added some Motion Blur to the background (Effects > Focus > Motion Blur) to smooth out my clouds and make it look like there was a little breeze. You will be animating the clouds independently, so make sure they are not cropped by the edge of the image. You may want to be able to isolate your clouds as independent selections for more flexibility.

4 On a new layer, create some smaller foreground clouds. Name this layer Clouds2. Save your file in the RIFF format to preserve your layers.

A write-on effect can be used as an effective signature for a client's logo. It is also fascinating to watch a drawing taking shape one step at a time. This simple technique can be used in a multitude of situations.



Play the Clouds script to see how the sky and clouds were created.

Create the text

1 Open a new file, the same size as your Sky file, and name it Whew.rif. Click the Text tool in the toolbox, or press "T" on the keyboard to activate the Text tool. Select a bold font and type "WHEW!." Use the Layer Adjuster tool to adjust the height and width of the word to your liking.

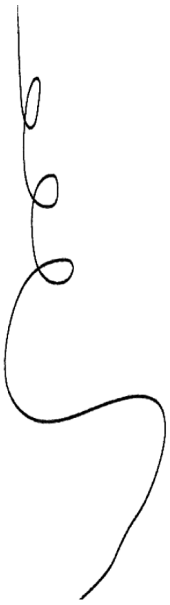
2 On the Layers palette, click the palette menu arrow and select Convert Text To Shapes. Click the arrow on the Whew! layer to see the shapes.

3 Click on any shape that needs adjusting or kerning. Experiment with the shapes of the letters. Customize the font by manipulating the shapes. Adjust the kerning. When you are happy with the kerning and overall letter spacing, choose Shapes > Convert To Selection. Save your work.

Kerning refers to adjusting the space between letters. Kern type for television carefully. Type that looks good in print does not always look good in video. Video is made of interlaced raster lines. If the type is thin, or has fine serifs, those details can be lost between the lines in video. It is usually a good idea to make the tracking (the space between the letters) a bit wider for video than for print to make up for the lower resolution of video.

Play the Whew script to watch how the text was created.

4 With a shape layer selected, click on Layers > Dynamic Plug-ins > Bevel World. Experiment with the controls until you get a look that you like.



By moving the background clouds only one "arrow key press" every two frames (animating on twos), you make them move more slowly than the foreground clouds, which are moved every frame.

Save versions of your animation regularly. You cannot undo once you forward a frame. You should copy your frame stack with a new file name and version number to keep track of your work.

5 Open your Sky.rif file. Open a new movie file, 720 x 486 at 72 ppi, 60 frames, and name it Skytitle.frm. Leave the default setting for the layers of onion skin at 2, and the storage type at 24-bit color with 8-bit alpha.

6 Copy the gradient layer from the Sky file and paste it into your movie. Hold down the Step Forward button on the Frame Stacks palette to deposit your gradient on each frame of your movie. When you have finished, drop the gradient layer.

7 Copy your first cloud layer from the Sky file and paste it into the first frame of your movie. You will be moving the clouds slowly across the screen. You may also select individual clouds from your layer to paste if you prefer.

8 Forward to the next frame and press the right arrow key on your keyboard to nudge the clouds over. Press the Page Up key twice, then nudge your clouds again. Repeat moving your clouds once for every two frames of animation until you have animated your clouds moving over the entire 60 frames. Drop the first cloud layer. (Animating on "twos" will cause the background clouds to appear to be moving more slowly than your foreground clouds.)

9 Close the file. Make a copy of the file under a new name for backup. All changes you make to a movie file are automatically saved over previous versions of the file; if you want to preserve the current version of the movie, you need to save the file under a different name before making any further changes.

Create the write-on

1 Open the Skytitle.frm file, the Whew.rif file and the Sky.rif file. Click the Fast Forward button on the Frame Stacks palette and make sure you are on frame 60 of your animation.

Timing is an important consideration when creating any animation. To create the WHEW! write-on, you must establish the following: 1) How long do you want it to take? In this instance, I decided that a 2-second effect would work nicely. Therefore, I created 60 frames. Video runs at 30 frames per second. I wanted a very smooth effect, so I animated on every frame. This is called working on "ones." 2) How many times do you need to erase within each letter? I looked at each letter and calculated how many erasures I needed to make.

2 Using the Layer Adjuster tool, pull your text on top of the final frame of your animation. You may want to adjust the brightness and contrast of your letters in relation to the sky by using Effects > Tonal Control > Brightness/Contrast. I also chose to add a very thin drop shadow from Effects > Objects > Create Drop Shadow.

3 On the Layers palette, make sure the Preserve Transparency check box is disabled, and the Pick Up Underlying Color box is enabled. Click back one frame to deposit your completed text on frame 60.

4 From the Erasers brush category, select the Eraser variant. Erase a portion of the exclamation point. Click backwards to the next frame and erase a little more. Repeat until you are back to frame one, and your letters are completely erased. Delete the text layer. This is a good time to play your animation! Close the movie file and save a new version of your animation.

5 Reopen Skytitle.frm. Now let's add a special effect. Make sure you are on the final frame of the animation by clicking the Fast Forward button on the Frame Stacks palette. Then, press the Page Down key on your keyboard to move back to frame 59. From the F-X brushes, select Fairy Dust. Make sure your current color is white. Experiment with the size of your brush by painting a little, then using the Undo function (Edit > Undo). When you are satisfied with the brush, paint over the edge of the area that has just been erased from the letters in the current frame. Page down and repeat until you reach frame 1. Use the Page Up and Page Down keys to check your placement of twinkles. Play your animation! Close the file and save a new version of your animation.

6 Your are now ready to animate the final cloud layer. Reopen the Skytitle.frm file. From your Sky.rif file, click on the Clouds2 layer. Select all, and copy your clouds. Paste the clouds onto the first frame of animation and animate them as you did the background layer. Move these clouds a bit on every frame so they will move faster than

the background clouds. When you reach frame 60, drop the cloud layer or delete it before playing back your animation.

7 Play your animation. You may now export your animation in a variety of formats.

Play Skytitle.mov to see the final animation.

Save your animation as sequential TARGA files

1 Choose File > Save As. The Save Movie dialog box appears.

2 Select the Save Movie As Numbered Files option.

3 In the Save Image As dialog box, choose a location where you want to save the file, and choose the TARGA file format from the Save As Type list. In the File Name box, enter a name for the first file. Since you may wish to import these files into another program, it is important to name and number them properly. The safest technique is to follow the convention of limiting your file name to 8 alphanumeric characters and your extension to 3 letters. For the Skytitle animation, try skya001.tga—"sky" describes the animation, "a" is the version, and "001" allows the creation of sequential files from 1 to 999. You must always begin or end the filename with a number with sufficient zeroes to accommodate the length of your animation.

4 Click Save. All frames of the animation are automatically saved and numbered as sequential files.

Saving your animation as sequential TARGA files has several advantages. The TARGA format is a common one used for video and is easily imported into video editing and compositing programs. The TARGA format will preserve alpha channel data, also making the images easier to composite. Corel Painter allows you to import sequentially numbered TARGA files into a new Corel Painter movie file.

Chapter 6

Saving and Exporting Movies

Once your movie is finished, you can save it or export it in various file formats. In this chapter, you will find out about the different saving and exporting options you have for your movie.

Corel Painter provides several options for saving and exporting your finished movies. Some file formats (such as QuickTime and Video for Windows) have compression options available.

Exporting a single image from a movie

You can export a single frame from your movie as a separate image.

Export a single image from a movie

1 Display the frame you want to export in the image window. You can click on the frame thumbnail in the Frame Stacks palette to display the frame.

2 Choose File > Save As. The Save Movie dialog box appears. Select Save Current Frame As Image, and click OK.

3 In the Save Image As dialog box, choose a location and file format, enter a name for the file, and click Save.

Exporting movies as QuickTime movies

You can export a movie as a QuickTime movie on either the Macintosh or the Windows platform. QuickTime supports different compression schemes (codecs). The following descriptions of the main compression options should help you choose one; however, you'll probably want to experiment with different compressors and settings to identify the best settings for your work. You may also have additional compression methods available depending on your hardware.

The word "codec" comes from combining the words "compression" and "decompression." A codec is any technology for compressing and decompressing data. Codecs can be implemented in software, hardware, or a combination of both. Some popular codecs for computer video include MPEG, Indeo® and Cinepak®.

The compression ratio is inversely proportional to image quality. The Quality slider allows you to set an optimum level between the amount of compression and image quality. For most work in Corel Painter, you'll want Quality set to High.

Animation

This compression method works well with areas of continuous tone. If you set Quality to Best and make every frame a key frame, this compressor is lossless. For most Corel Painter animations, this compressor is a good choice.

Cinepak

This method produces acceptable motion and image quality at remarkably small file sizes. It is the preferred format for CD-ROM delivery and transfer across the Internet. Cinepak can take a long time to compress, and it can be difficult to find the best compression settings for certain image types and frame rates.

Graphics

This method is limited to 256 colors. It compresses the file at a greater ratio than the Animation compressor, but does not play as quickly.

None

With this setting, no compression is used, so the images retain all of their quality. With a large frame size, some computers might not be fast enough to play at a high frame rate.

Photo-JPEG

JPEG is an international standard for image compression. It allows high compression ratios while maintaining excellent image quality. However, it does not play at high rates.

Video

This method is designed for recording and playing back digitized video at high rates. Because of the spatial compression method it uses, the Video compressor does not provide great results for images with large areas of continuous tone, such as those in most animations.

Codecs make use of different techniques to compress images. Some are "lossy," meaning that they lose data to make the files smaller. The JPEG format is lossy. This is a great format for the Web, allowing you to choose the amount of loss you are willing to accept. However, you should never save a JPEG twice. Each time the file is resaved, it will lose more data. Be aware of whether you are saving your work with lossy or lossless compression and choose wisely.

Export a Corel Painter movie as a QuickTime movie

1 Choose File > Save As.

2 In the Save Movie dialog box, enable the Save Movie As QuickTime option.

3 In the Enter Movie Name dialog box, choose a location, enter a name for the file, and click Save.

4 In the Compression Settings dialog box, choose a compression method from the pop-up menu. Specify the options you want.

Exporting movies as AVI movies (Windows)

If you are using a Windows system, you can export your movie as an AVI movie. AVI, like QuickTime, supports various compression schemes. The most common options are explained below. Again, you will probably want to experiment with different compressors and settings to identify the best settings for your work.

Cinepak Codec By Radius

This method produces acceptable motion and image quality at remarkably small file sizes. It is the preferred format for CD-ROM delivery and transfer across the Internet. Cinepak takes a long time to compress, and it can be difficult to find the best compression settings for certain image types and frame rates.

Intel® Indeo Video R3.2

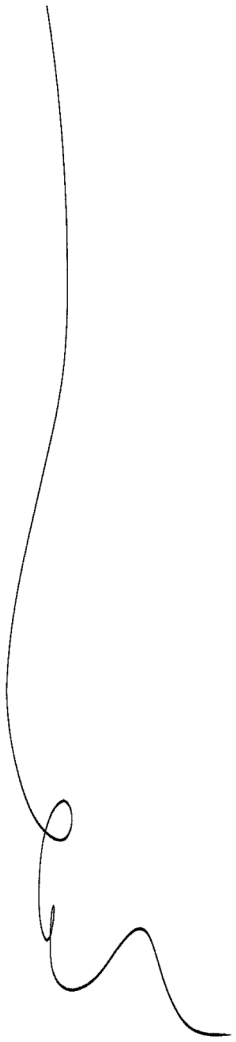
This method is capable of full-motion playback on systems with a hardware compression accelerator.

Microsoft Video 1

This method is designed for recording and playing back digitized video at high rates.

Full Frames (Uncompressed)

This method uses no compression, so the images retain all of their quality. With a large frame size, some computers might not be fast enough to play at a high frame rate. This is the preferred format for transferring Corel Painter movies to AVI-editing applications.



Export a Corel Painter movie as an AVI movie

1 Choose File > Save As.

2 In the Save Movie dialog box, enable the Save Movie As AVI option, and specify the number of frames per second.

3 In the Enter Movie Name dialog box, choose a location, enter a name for the file, and click Save.

4 In the Video Compression dialog box, choose a compression method from the Compressor pop-up menu. Specify the options you want. For some compression methods, you can click the Configure button to specify additional options.

Working with numbered files

Corel Painter supports importing and exporting numbered files. Numbered files are any series of files that are the same size and resolution, and that are named following a specific style, which includes a number at the beginning or at the end of each filename. For example, the first frame might be called Movie001, the second frame Movie002, and so on. When you export a movie as numbered files, you can import the numbered files into an application that may not support other movie formats.

When exporting, you specify the filename for the first file. You must include zeroes so that all numbered files have the same number of digits. For example, if you are creating numbered files from 1 to 24, include "01" in the filename. If you are creating numbered files from 89 to 110, include "089" in the filename.

Importing numbered files is an excellent method of bringing an animation from another 3-D or animation program into Corel Painter. When importing numbered files, make sure that the file format is supported by Corel Painter, and that the number of digits in each filename is the same. When you import numbered files, you create a new frame stack, and you are prompted to choose a number of onion skin layers and a storage type.

Export a Corel Painter movie as numbered files

1 Choose File > Save As.

2 In the Save Movie dialog box, select the Save Movie As Numbered Files option.

3 In the Save Image As dialog box, choose a location and file format, enter a name for the first file. You must begin or end the filename with a number—for example, "01Movie" or "Animation14."

4 Click Save.

Import numbered files

1 Choose File > Open.

2 In the Select Image dialog box, enable the Open Numbered Files check box. Double-click the last numbered file. (You can also select the file and click Open).

3 In the Enter Movie Name dialog box, choose a location to save the imported movie, enter a filename, and click Save.

4 In the New Frame Stack dialog box, choose a number of onion skin layers and a storage type.

5 Click OK. Corel Painter sequences the images into the frames of a new frame stack.

Most Web visitors will not wait a long time for pages to load. Not everyone has high-speed Web access. Try to design for a typical modem speed of 56,600 bps. Test your pages on different platforms to see how they hold up. Macintosh computers typically use a brighter gamma setting than the PC. You want your work to look good under a variety of circumstances.

Exporting movies for the Web

Corel Painter allows exporting a frame stack as an animated GIF file which can be displayed on a Web page. Animated GIFs can be used to animate Web banners, greeting cards and short films for the Web.

The primary concern in designing animation for the Web is file size. The larger the file, the longer it will take to load. Most Web visitors will not want to wait very long for an animation to load, especially if the animation is not very informative or is strictly decorative. With that said, all the animation techniques you have learned so far, with a little planning for file economy, can be used to create animation for the Web.

To make your animation files smaller, you can reduce the frame size. Limiting the number of frames is another way to shrink file size.

Understanding GIF options

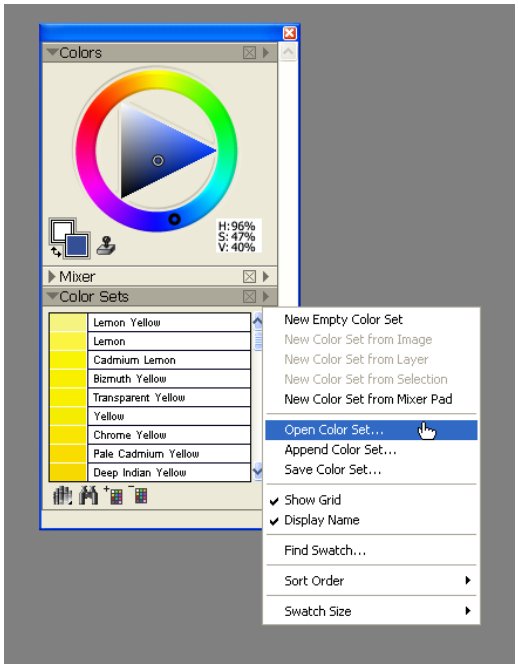
"GIF" stands for Graphics Interchange Format, a file format using 8 or fewer bits. That means that when you save a GIF file, you can choose settings from 4 colors to no more than 256 colors. However, you can choose how your colors will be displayed and even choose to make a part of your image transparent.

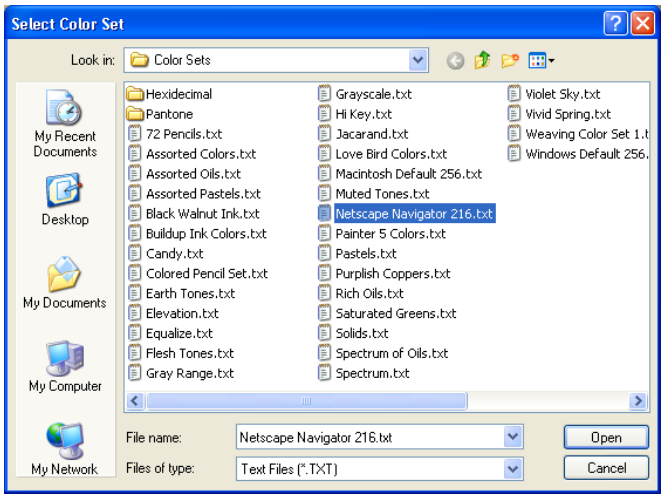
When saving a GIF, you can enable the Color Set option to force all colors in the GIF file to match the colors in the current color set. This option is especially useful if you want to constrain colors to a specific color set or control the number of colors in a Web page, thus controlling the image file size. Corel Painter has a "Web-safe" color set, mapping to the default Netscape Navigator® color set.

Limit the number of colors you use. Fewer colors lead to smaller file sizes.

Corel Painter offers many powerful Web design tools, including tools for image slicing, rollovers, and image maps. Check the online Help or your manual to familiarize yourself with all the Web options offered to you. Corel Painter even ships with a Web brushes library of "Web-safe" brushes.

It is advisable to create images for the Web using Web-safe colors from the beginning. That way your image will not change, and it will not need dithering. To use Web-safe colors, open the Netscape Navigator color set by going to the Color Sets palette drop-down menu and clicking Open Color Set. Choose Netscape Navigator 216. Load the color set and make sure you select your colors from it while creating your Web graphics.

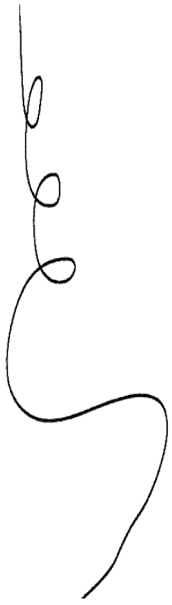




Sometimes the color palette has already been set with other output in mind. Perhaps you are re-purposing video to use on the Web. You have to take an image from millions of colors down to 256 colors or fewer. In

If your animation promises to be entertaining, rather than essential, you can give the user a choice whether to open the animation. Under those circumstances, you can get away with a larger animation file. Use a preview of the animation that the user can click on to open the larger animation. Wherever possible, give the user a choice, and provide an estimate of the time it will take to load large files.

Web banners are a situation where the user is not given a choice. They are usually an integral part of the design of the Web page. In that case, consider it good manners, as well as good sense, to design the animation to load as quickly as possible.



that case, you need to determine the best settings for your image based on what you consider acceptable image quality, weighed against the file size.

The Imaging Method setting that you choose will determine how your 24-bit Corel Painter document will be converted to the limited number of colors that the GIF format uses. If you choose the Quantize To Nearest Color option, Corel Painter picks the color nearest to that of each pixel. This method is useful if your image has broad areas of a single color. If you choose Dither Colors, Corel Painter applies a pattern to the colors chosen to generate a more accurate, less banded result. You will have to experiment to see which works best with your particular imagery.

If you want your image to have transparency, enable the Output Transparency check box. Most programs that display GIF files support transparency, but for those that don't, you should specify the color of the "transparent" area—this area will be the same color as the background of the Web page, and so it will appear transparent. If your image is going to be displayed on the Web, enable the Background Is WWW Gray option. You can also choose to use the background color of your Web page by enabling the Background Is BG Color option. Plan carefully if you use transparency.

For programs that support transparency, your selection will determine which areas are transparent. The Threshold slider determines which selection (loaded mask) value becomes transparent. You can see how the Threshold slider is affecting the transparency of your image in the Preview window. Transparency is represented in the Preview window by a rectangular lattice. Enable the Interlaced check box if your image will be displayed on a Web page.

Export a movie as a GIF

1 Import the Run QuickTime movie and save it as Webanimation.frm.

2 Choose File > Save As, and then choose Save Movie As GIF Animation. The Save As GIF Options dialog box appears.

3 Move the dialog box next to the image so that you can compare the colors in the Preview window with the colors in the original image. Try different color settings, as well as Dither Colors and Quantize To Nearest Color. Pick the settings that most closely resemble the original.

4 Open the file in a Web browser to see how it looks.

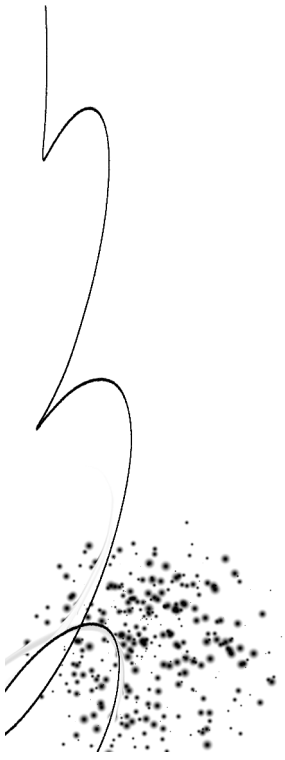
5 Try selecting an area for transparency and saving the file with the transparency set.

You can set animation-specific GIF options—Frame Delay, Disposal Method, and Loop. Frame Delay allows you to specify a pause (in 100ths of a second) between each frame. Without a delay, the frames appear as quickly as the system can load and display them. The display of each image (especially with larger frames) will vary among computer systems, so the actual animation display rate may be lower. Allow more time for display. The Disposal Method lets you specify what happens to an image after it has been displayed (and its frame delay has passed), and before the next image is displayed. The disposal method is significant only when using transparency that differs between frames.

- With Default, the browser's default disposal method is used.
- With None, the image is left on-screen and the next frame is rendered over it.
- With Background, the region covered by the image is restored to the background color.
- With Previous, the region covered by the graphic is returned to the imagery of the previous frame.

If you want the animation to repeat, enable the Loop option. Enter the number of times the animation should repeat. If you want it to repeat indefinitely, enter 0.

Create a slide show of your portfolio



1 Scan or use a digital camera to photograph your artwork. Try for a minimum of 6 to 10 pieces.

2 Copy your work to a new folder called Web Portfolio.

3 Resize the artwork to 72 ppi and no more than 200 x 200 pixels. Save the resized versions in your new folder so your originals are left intact.

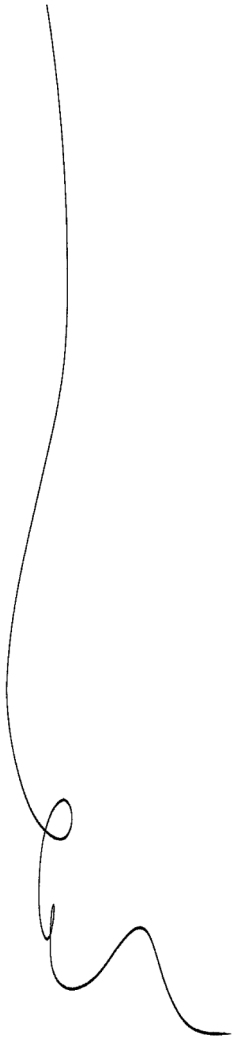
4 Assuming you have 10 pieces of art for your show, open a new frame stack, 200 x 200 pixels at 72 ppi and 10 frames.

5 Copy your artwork file and paste it into a frame of your movie. Remember to drop it so it is not accidentally deposited when you move to the next frame. Repeat until you have a different piece of your artwork in each frame of your movie.

6 Save the completed frame stack as a GIF. Painter does not open GIF files as frame stacks so make sure you save your file under a different name than your frame stack.

7 In the GIF options dialog box, set your color choices. Under the animation options, set the frame delay to the interval you desire, as well as the disposal method you would like to use. Decide how often you would like the slide show to repeat and set that number under Loop.

8 Open the file in your browser to watch the slide show.



Assignment 4

Animating a Web banner

Using the write-on techniques you learned in the previous lesson, create a Web banner announcing your new Web site. Keep the following in mind: If you limit your color palette, your file will be smaller. If you stick with Web-safe colors, you won't have to dither the image. The fewer the frames, the smaller the animation file will be. Design your animation to loop so it looks good running continuously.

1 Create a file folder to hold all the elements of your Web banner.

2 Storyboard your animation first. Web banners are typically 468 x 60 pixels at 72 ppi, so storyboard at the correct size.

3 Based on your storyboard, plan all the separate pieces of artwork you will need to create to build your animation. Create them and save them to your Web banner folder.

4 Create a new frame stack, 468 x 60 pixels at 72 ppi and no more than 10 to 15 frames in length.

5 Create the animation and save it as a GIF. Make sure Loop is set to 0 if you want it to loop indefinitely.

6 Check the file size and open the file in your browser to test.

Chapter 7

Animating with Strokes

Imagine being able to animate simply with a stroke of the brush! Now imagine creating a brush that consists of the stages of a man walking. Imagine recording drawing with that brush, and automatically creating an animation of your character walking wherever your brush wandered!

Working with the Image Hose

To begin, we will create a simple cycle of a butterfly flapping its wings.

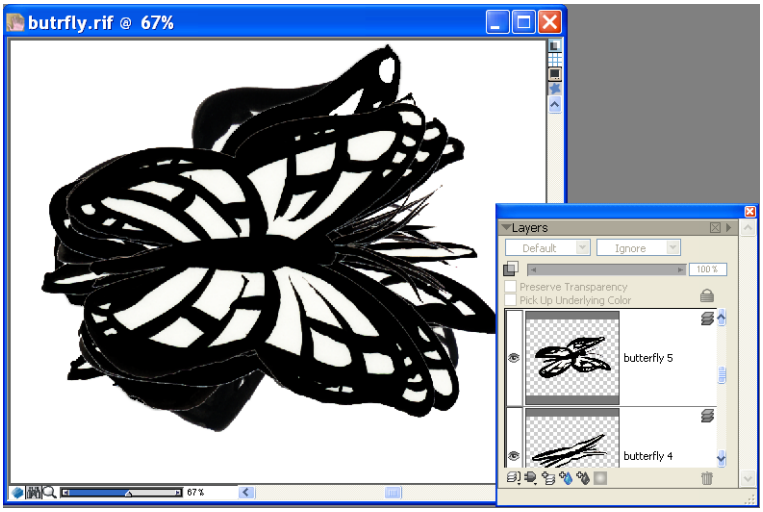
Cycles are great for animating anything that needs to be repeated. Walks are especially good candidates for cycling, as well as birds flying, butterflies fluttering, eyes blinking, water spilling, flames flickering—all are worth animating as cycles.

Create a butterfly nozzle for the Image Hose

1 Open a new file, 320 x 240 at 72 ppi and call it Butrfly.rif.

2 Create a new layer and name it Butterfly 1. Sketch the first position of your butterfly using one of the brush variants. Experiment with a variety of brushes to get an "ink" line that you like.

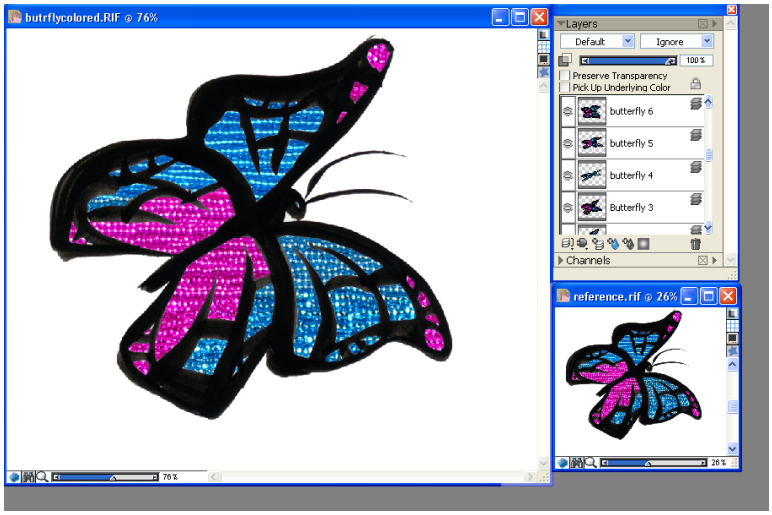
3 Using the inbetweening skills you learned in chapter 3, create 8 positions for your butterfly cycle, each on its own layer.



To save time switching fills and colors, paint with one color or fill at a time on each layer. Shut off all the layers but the one you are painting on. Fill with one color or pattern. Shut off the layer and click on the next layer to fill, turn it on and paint. Continue until you are finished painting each layer with that one color and fill.

Make a separate file of the full color painting as a reference to paint and sample color from. This is especially useful if more than one person is doing the coloring.

4 Paint your butterflies. Try using and making patterns for filling the wings. I used a pattern to make textured fills on my wings. I reproduced the pattern in different colors for different parts of the wings.



5 Hold down the Shift key and starting with Layer 1, click on each layer on the Layers palette until all 8 layers of butterflies are selected. Choose Layers > Group to group the butterflies.

6 In the toolbox, click the Nozzle Selector. Click the selector menu arrow, and choose Make Nozzle From Group. Corel Painter will create a file with all the positions of your butterfly. Save the file as Butterflybrush.rif and close it.

7 In the Nozzle Selector, click the menu arrow, and choose Load Nozzle. Open Butterflybrush.rif.

8 From the Brush Selector bar, select the Image Hose brush category and try several variants. I chose the Linear-Size-P Angle-R variant. Butterflies flit around somewhat erratically. This variant allows me to change the size and angle of butterflies flight with the pressure I exert, helping me to draw a more realistic flight pattern.

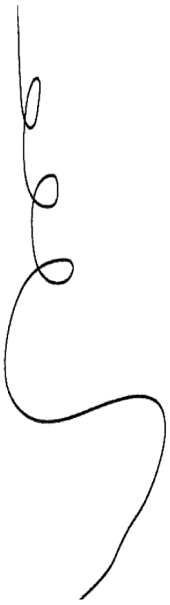
Try the sample butterfly brush (Buttrflybrush.rif).

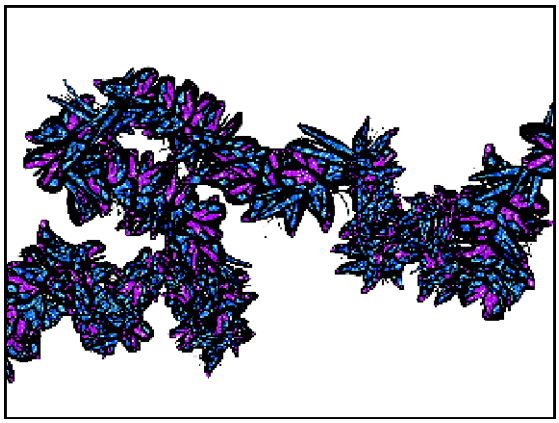
Record a stroke

1 Open a new file, 320 x 240 at 72 ppi.

2 On the Brush Selector bar, click the menu arrow, and choose Record Stroke. The next brush stroke you make is saved in memory.

3 Adjust the brush size and using your butterfly brush, draw a continuous path across the canvas.

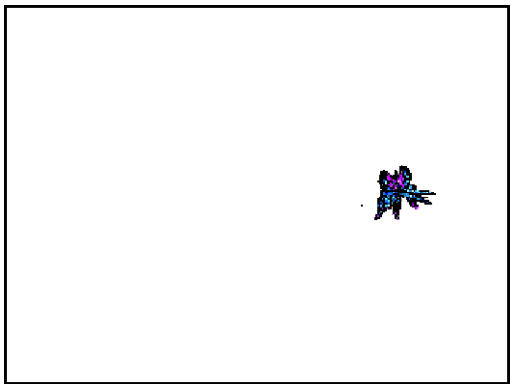




4 Open a new movie, 320 x 240 at 72 ppi and 60 frames. Name the movie Flight.

5 Select Movie > Apply Brush Stroke To Movie. Sit back and watch your butterfly flit across your movie!

Play the Flight QuickTime movie.



Animate the butterfly through a field of flowers

1 Open a new file, 640 x 480 at 72 ppi, and call it Flowers.rif.

2 Using a variety of tools in Corel Painter, create a field of flowers for your butterfly to fly through. Create some of the flowers on a separate layer so the butterfly will appear to fly behind some of the flowers. Save the file and leave it open.

3 Create a new movie file of 60 frames at 640 x 480 and 72 ppi. Name it Lazyday.frm.

4 Copy and paste the background into the movie. Apply the background by holding down the Step Forward button in the Frame Stacks palette to deposit the background on each frame. When you are done, delete the layer and return to frame 1.

5 Open a new file, 640 x 480 at 72 ppi. Record the stroke of the butterfly Image Hose across the canvas. Close the file without saving.

6 Apply the stroke to your movie.

7 Record another stroke in a new file and apply that to your movie as well. Repeat this step until you have several butterflies flitting across the background.

8 Drag the next layer of flowers from the Flowers.rif file over your movie. Apply the layer by holding down the Step Forward button in the Frame Stacks palette to deposit the flowers on each frame. When you are done, delete the layer and return to frame 1. Remember to drop or delete the layer before playing back the animation.

9 Export the movie in the format of your choice. Try importing it into an editing program and adding some sound!

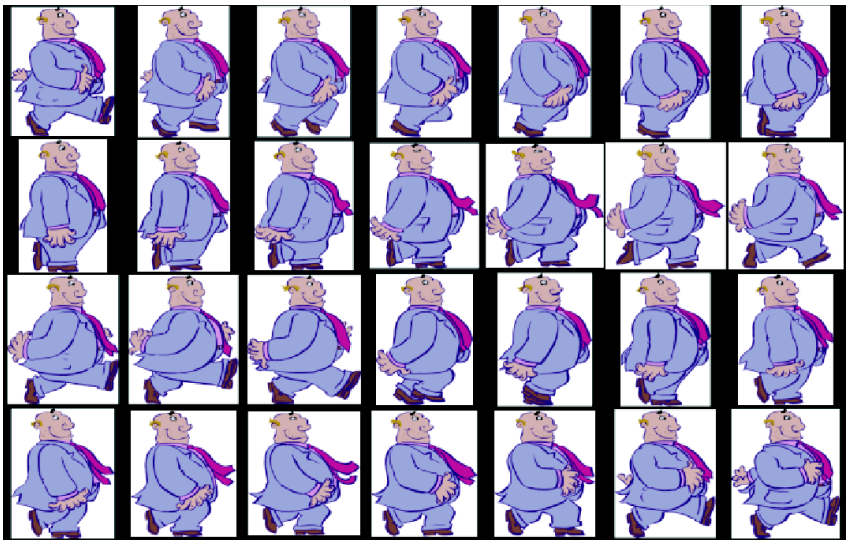
Play the Lazyday QuickTime movie.

Assignment 5

Animating a walk cycle

1 Draw a walk cycle. Use the inbetweening skills you have learned in earlier exercises.

2 Clean up your drawings and place each pose on a separate layer.



3 Group the layers of all the walk positions.

4 Make an Image Hose nozzle out of your walk cycle just as you did with the butterflies. Save the Image Hose file as Walk.rif.

5 Create a movie with a moving background.

6 Record the stroke of the walk to match the background.

7 Apply the stroke to the movie.

Play the Walkman QuickTime movie.

With the pressure preference set high for the Wacom® pen, the Brush Tracking > Pressure Scale option, accessible from Corel Painter IX > Preferences (Mac OS) or Edit > Preferences (Windows), will give you a lot of control over the Image Hose variants that use pressure. To create the silly walking man, I recorded a stroke varying the stroke pressure from hard to light to make him get smaller as he trundles away.

Chapter 8

Rotoscoping with Corel Painter

Rotoscoping is the process of taking footage and using it as reference to create animation. It is essentially about tracing over an image to add special effects, remove unwanted elements or add new backgrounds. For the new animator, rotoscoping can be a great way to study lip synching. In addition, Corel Painter has some unique tools that can be used to create interesting effects with rotoscoping.

Corel Painter can easily import QuickTime movies, AVI files and sequentially numbered files in TARGA and TIFF formats. All of these are translated to frame stacks by Corel Painter, so the animator can work on them with any of the tools available.

Just tracing animation is never enough. The animator still has to make important aesthetic decisions. Animation is about exaggeration, not about mimicking reality. You will find that you have to tweak rotoscoped animation so that it does not simply look like processed footage. The trick is to make use of the reference without being a slave to it.

Tracing with a color not found in the image makes it easier to select the tracing afterwards. If you are shooting footage that will be used as a reference to rotoscope later, try to shoot against a color that is in contrast to the image you are shooting so that you can easily separate it from the background. This is a variation on a technique called "chroma keying," which is one of the "blue screen" techniques for television.

Import and trace footage

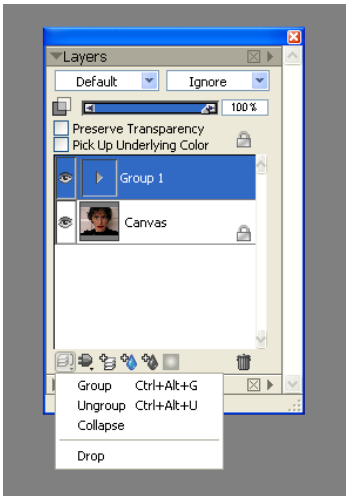
1 In Corel painter, open the Hello QuickTime movie. You will have to select it twice, once in the Select Image dialog box (to select the file itself) and once in the Open dialog box (to select the preview). You will then be asked to save the file as a frame stack. Name it Lipsynch.frm. The QuickTime movie will be read in and made into a frame stack.

2 Select the Pen tool from the toolbox. Make sure the Fill check box is disabled in the property bar. Choose a stroke color that is not in the image, for example bright green, and trace over the mouth.

3 If you need more than one shape to create the tracing, group the shapes by selecting them in the Layers palette and then grouping the layers (Layers > Group). Collapse the group by clicking the Layer Commands button and choosing Collapse, and commit all shapes to a layer. Drop the layer to the canvas by clicking the Layer Commands button and choosing Drop.

Get in the habit of using the layer shortcut buttons at the bottom of the Layers palette to access the most commonly used layer commands.

Don't forget you can zoom in on the area you are working on—a big help when you are tracing. Remember, you can use other tools along with the Pen tool to clean up your tracing. If you start to paint on a shape layer, it will automatically collapse to a regular layer!



4 Proceed to the next frame and repeat steps 1-3 until you have the mouth traced in every frame.

Separate the mouth

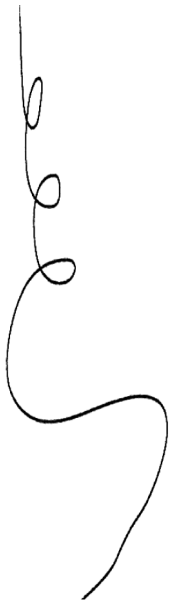
Why a green mouth? The better to separate it from the picture!

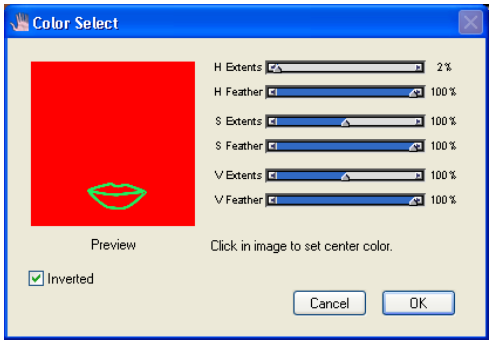
1 Choose Window > Show Scripts. The Scripts palette opens.

2 Click on the red Record button.

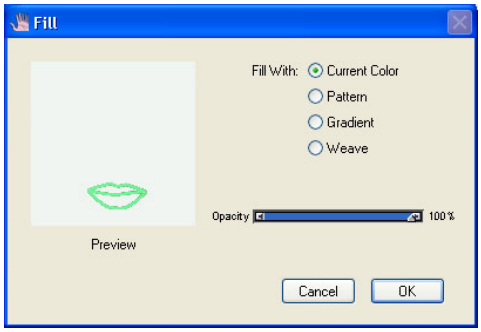
3 Zoom in on the mouth. Using the Dropper tool from the toolbox, click on the lips to select the green color.

4 Choose Select > Color Select, and enable the Inverted check box. Adjust the controls so that only the green tracing is selected. It should appear as green lips on a red background. Move the preview around to make sure that nothing but the lips is showing. Click OK.





5 Set the foreground color to white and choose Effects > Fill > Current Color to fill everything but the lips with white.



6 Stop recording the script and name it Lips.

7 Undo the changes you made to the first frame of the movie.

8 Go to Movie > Apply Script To Movie. When the dialog box opens, select the Lips script and click Playback. The script will now play over the entire movie. You should be left with just green lips on a white background.

9 Play the movie at 12 frames per second to watch the mouth lip synch the words "Hello. How are you?"

Play the Lipsonly QuickTime movie.

Composite a strawberry with the lips

We will use another script to composite a strawberry with the lips.

1 From the Image Portfolio, choose the Strawberry image and drag it onto the first frame of the lips movie. On the Layers palette, lower the transparency so you can see to line up the strawberry with the mouth. Once the strawberry is in position, return the transparency to 100%. Select the strawberry layer and copy it.

2 Make a new file the same size as the movie (320 x 240 at 72 ppi). Choose Edit > Paste In Place to paste the strawberry. Drop the strawberry layer to the canvas. Save the file as Strawberrybackground.rif and keep it open.

3 In the movie file, delete the strawberry layer.

4 Start recording a new script.

5 Choose the Magic Wand tool from the toolbox. In the property bar, make sure the Contiguous box is checked and the tolerance is set at 16 or less. With the Magic Wand tool, select the white background around the lips in the movie frame.

6 Choose File > Clone Source, and choose Strawberrybackground.rif.

7 Select Effects > Fill > Clone Source. The strawberry should appear behind the lips. Use Command+D (Mac OS) or Ctrl+D (Windows) to deselect.

8 Stop recording. Name your script Clonestrawberry.

9 Undo the changes to the first frame of the movie. Choose Movie > Apply Script To Movie and select the Clonestrawberry script. Click the Playback button. The strawberry should now be sitting behind the lips on every frame of the movie.

10 Paint in the lips frame by frame.

Play the Berrylips QuickTime movie.

Assignment 6

Rotoscoping dialogue

1 Using the techniques you have learned in the exercises, videotape yourself or a friend speaking a brief phrase.

2 Save the footage as a QuickTime movie, or a series of sequential files.

3 Open the movie in Corel Painter and trace the elements you wish to use.

4 Design a simple character to match the mouth movements you have traced.

5 Combine your character with the lip-synched mouth movements.

6 Clean up, paint the final animation and save it as a QuickTime movie.

7 Play your movie!

Combining the best of both: Rotoscoping 3-D

3-D animation programs have changed the face of animation. Some of the best films are made by artfully combining 2-D and 3-D animation. Corel Painter can be used in many ways to tweak the look and feel of animation done in a 3-D program. The following image of a swordswoman, created in a 3-D program, was combined with a background created in Corel Painter.

3-D model of street and swordswoman matched and rendered over the 2-D Corel Painter background.

Combining 2-D elements with 3-D animation can save a great deal of time. "Render unto 3-D what should be 3-D, and render unto 2-D what should be 2-D" is an important lesson to learn. If your background is going to have to turn in space, by all means model it in 3-D. If it is stationary, save yourself a tremendous amount of rendering time by creating the background in 2-D in the proper perspective, then match the 3-D model to the background.

Creating the background

The background was created in Corel Painter from a photograph.

Photograph of John Ryan by the author, Joyce Ryan.

The photograph was cropped, and cloning tools were used to remove John, the power lines and other contemporary objects from the picture. Next, the Effects > Surface Control > Sketch function was used to transform the photo into a line drawing.

Photograph transformed into a sketch using the Effects > Surface Control > Sketch function in Corel Painter.

Next, the original photograph was cloned into a new file using watercolor cloners. A lighting filter was added (Effects > Surface Control > Apply Lighting) to give it a golden "storybook" glow. The sketch was then copied and pasted into the clone.

Effects > Surface Control > Apply Lighting was used to impart a golden light to the image.

Finally, a surface texture of watercolor paper was added to complete the effect of a watercolor background.

Rotoscoping the 3-D animation

The next step was to select the wall from the original 3-D background and copy and paste it into the animation to get the illusion of the swordswoman running behind the building.

3-D programs can save sequentially numbered files that are easily opened as frame stacks in Corel Painter. The swordswoman was brought into Corel Painter for further rotoscoping.

Completed background painting composited with the 3-D animation.

The road needed some texture to match the rest of the background. In this case, I used the Magic Wand tool to select the road. The road texture and a tint of color were added by making a selection of the road and filling the selection with a color overlay (Effects > Surface Control > Color Overlay) set to Paper. This had the advantage of only adding texture and a color adjustment, preserving the shadow of the running figure on the road.

Play the Run QuickTime movie.

Chapter 9

The Power of Scripting

Every good computer graphics program offers the ability to write scripts in one form or another. Tapping into the power of scripting greatly increases your ability to make software work for you. No matter how comprehensive the tools in a piece of software might be, there is always something the programmers didn't think of, or a feature that would have been too bulky or specialized to include, or a repetitive task you would like to automate, such as applying the same effect to each frame in a video clip. And that is where scripting comes in. You can literally write your own processes without having to learn programming.

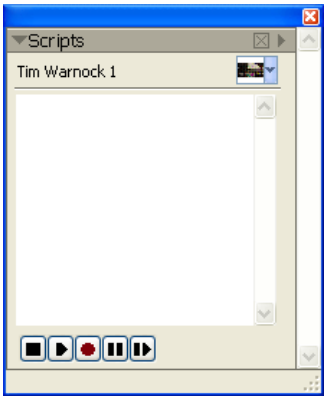
In Corel Painter, scripting offers you, for example, the power to have unlimited "undos." If you record your work in a script, you can revert to any stage in the project by playing the script back and stopping it at the stage you want.

There are two kinds of scripts in Corel Painter. One type you use with the Record feature. The other automatically records your work session. Should your computer crash, there is a good possibility you can retrieve your work session in Painter by playing back the script from the time of the crash.

You can specify how many days Painter keeps the automatically recorded scripts by specifying the number of days in the Preferences > General dialog box. The default is one day.

Play a script

1 Open the Scripts palette by going to Window > Show Scripts.

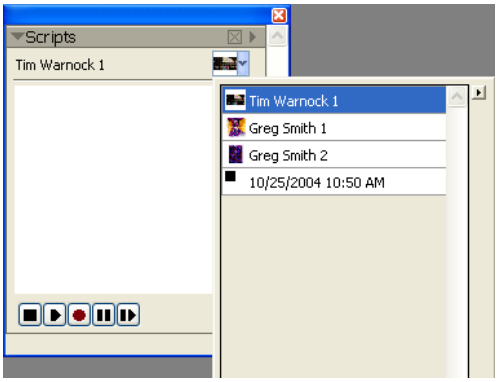


2 Play the Tim Warnock 1 script by clicking the Play button at the bottom of the palette.

3 Play the script again, this time using the Stop or Pause button to stop the playback.

Should you have to play back a day's script, you will be better off to open it and copy just the parts you need, then paste them into a new script and play that script back.

4 From the Script Selector, choose another script and play it back.



5 Click the Single Step button to see the steps the script is following.

Recording a script

Before recording a script, stop and think about what it is you want the script to do. Write down your steps, then record.

As an animator, I am constantly making storyboards. I find it convenient to have a script that will automatically create my storyboard templates. In this exercise, we will script a typical video storyboard panel.

Record a script

1 Start recording by clicking the Record button on the Scripts palette.

2 Open a new file with a white background. Set it to 720 x 486 at 180 ppi (that is a good resolution for printing on a 1440 dpi inkjet printer).

3 Choose Select > All, or use Command+A (Mac OS) or Ctrl+A (Windows). Choose Select > Convert To Shape.

4 From the Shapes > Set Shapes Attributes dialog box, make sure Stroke is on and Fill is off. Select a color for your border and adjust the size of the stroke.

5 Choose the Shape Selection tool in the toolbox. In the property bar, click the Convert To Layer button, then drop the layer to the canvas.

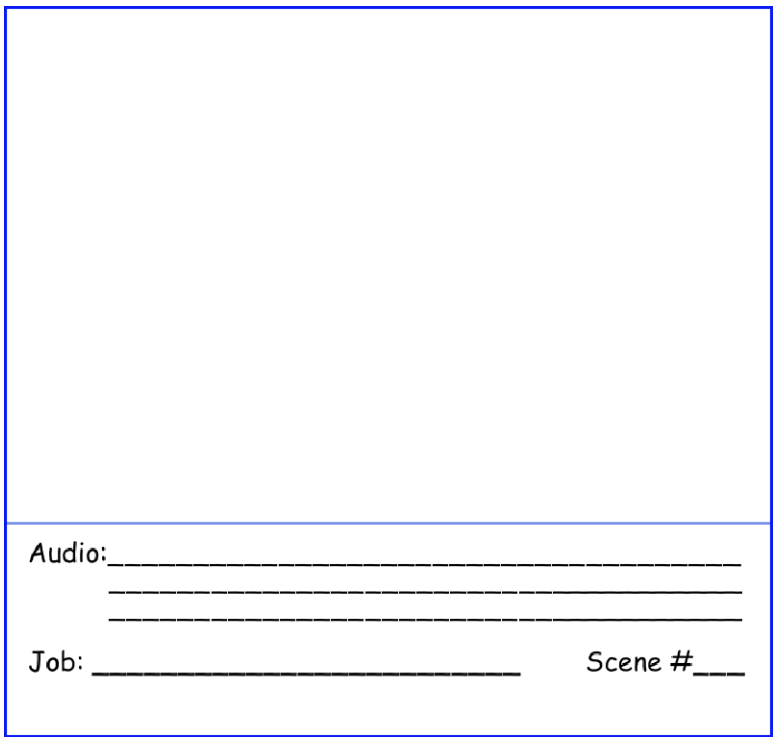
6 Go to Canvas > Canvas Size, and add 200 pixels to the bottom of the canvas.

7 Click on the Text tool in the toolbox, and type in "Audio," "Job" and "Scene #."

8 Put a thin border around the entire image. Make sure everything is dropped to the canvas, and stop recording. Give your script a descriptive name like NTSC756X486.

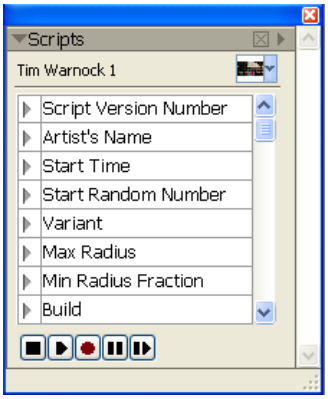
9 Close your image file and play back your script. If you have done everything correctly, you should have an image similar to this:

A script is a tiny file compared to a high-resolution image file. Record a script for every type of storyboard you might need. Move the scripts to a library called Storyboards. Load the library and run the appropriate script whenever you need a storyboard panel!



Editing scripts

Scripts are flexible. For example, you can play a script one instruction at a time. You can also edit scripts by opening them in the Scripts palette. To open a script, click the palette menu arrow, and choose Open Script. In the dialog box, choose the script and click Open. You will see all the steps and information about the script listed.



You can edit a script to change the order of instructions, remove an instruction, or add a segment from a different script. You can select instructions by clicking them. To select multiple instructions, hold down Shift when clicking them.

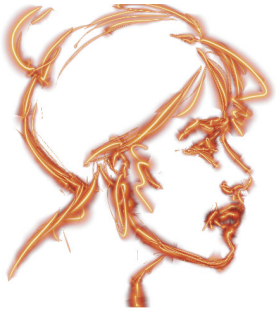
To cut, copy and paste parts of your script, select one or more instructions, then click the palette menu arrow and choose Cut or Copy. Select the instruction before which you want to paste. Click the palette menu arrow and choose Paste. Corel Painter stores copied instructions in the Clipboard, so you can close one script, open another, and paste the instructions there.

Recording a painting

Imagine recording a drawing, then playing the drawing back with a different drawing tool. This is an easy way to experiment with different looks, and an easy effect to create using scripting. The trick is to set up the script options correctly in Corel Painter.

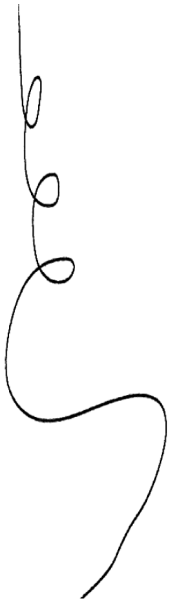
Replaying scripts with different tools is a wonderful way to experiment with a sketch.

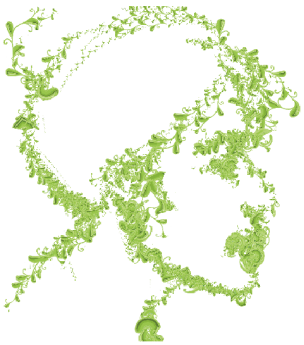
Original sketch created with an Airbrush variant.



The same sketch script replayed using an orange neon pattern brush.

Before you start recording a painting, make sure that Record Initial State is turned off, and pick the tool you wish to draw with.





Sketch played back with a different pattern brush.

Record a painting

1 Open a new file. Pick your color and your drawing tool.

2 On the Scripts palette, click the palette menu arrow, and choose Script Options. In the Script Options dialog box, disable the Record Initial State option. This will allow you to change art materials on playback.

3 Start recording.

4 Make your sketch, but be careful not to change colors or drawing tools.

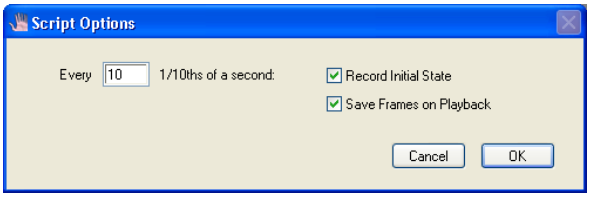
5 End recording and name your script Sketch.

6 Choose Select > All, and hit the Delete or Backspace key to clear your canvas. Test your script by playing it.

7 Now play back the script with different tools and colors. Try combining several playbacks over the same file.

Scripting for animation

Scripts can also be created for the purpose of making movies. You can create a movie from a script by saving the script as frames during playback. Before you record the script, you need to enable the Record Initial State option. Once the script is recorded, you can play it back to test it before you save it as a movie. When you want to create a movie from the script, go to the Script Options dialog box and enable the Save Frames On Playback option (this is the option that directs Corel Painter to create a movie on playback).



Choose how many tenths of a second you want between frames. Corel Painter defaults to ten 1/10ths of a second. The lower the number, the more frequently a frame is created and the smoother the animation will be. More frames, however, use more disk space.

In this example, I played back my Sketch script. When Save Frames On Playback is turned on and you play a script, a dialog box will open asking you to save a frame stack. I named the file Sketch.frm. Corel Painter automatically broke the movie up into 72 frames. The length of the movie will depend on the 1/10ths of a second setting you choose and the length of your script.

Play the Sketch QuickTime movie.

If you are turning a long script into a frame stack, be aware that it may result in a very large file. If you recorded the act of painting a high-resolution picture, the frame stack will have to create frames the same size and resolution as the picture. And even with standard 720 x 486 frames at 72 ppi, hundreds of frames will make for a very large file. Be careful that you have sufficient disk space before you start a project of that magnitude.

Increasing resolution with scripts

In Chapter 1 we covered a great deal of information on how to choose the correct resolution to work in. One of the reasons artists like to work with vectors is that they are resolution-independent. They are easy to make larger with no loss of image quality. When you enlarge a bitmap, however, the image quality suffers. With scripts, there is a way around this limitation. You can use a script to record your painting while you work at a low resolution, then play the painting back at a higher resolution! This technique allows you to paint quickly and intuitively at a low resolution, while still having the advantage of being able to render your painting at a high resolution.

Replay a script at a higher resolution

When creating a script for high resolution, keep things simple. If you import photos or use shapes, image hose brushes or complicated selections as part of the script, your image may not play back correctly at a high resolution. Try to plan your painting so that you add those things after the painting has been rendered in high resolution.

1 In the Script Options dialog box, make sure the Record Initial State option is enabled and everything else is turned off.

2 Open a new file, 640 x 480 at 72 ppi.

3 Choose Select > All. (This action allows for a resolution-independent playback later. It creates a reference rectangle that is part of the recording. The rectangle must be recorded to play a session back into a higher resolution file later.)

4 Start recording your script.

5 Make your painting. When you are finished, stop recording and name your script Hi_rez.

6 Open a new document, two to four times the size of your original file (in this case, 1280 x 960 or 2560 x 1920 at 72 ppi). Make sure the new document has the same aspect ratio as the original, so your image won't get distorted.

Do not try to render your painting at more than 2 to 4 times the original size.

7 Choose Select > All again to select the entire canvas. The rectangle recorded at the outset of the original script is referenced to the selected rectangle in this document.

8 Now play back the Hi_rez script you created. Corel Painter will play back the script in the new document while automatically scaling the brushes to fit the higher resolution.

Assignment 7

Using a script to create animation

1 In the Script Options dialog box, enable the Record Initial State and the Save Frames On Playback options. Leave the default speed at 10.

2 Open a new file, 320 x 240 at 72 ppi.

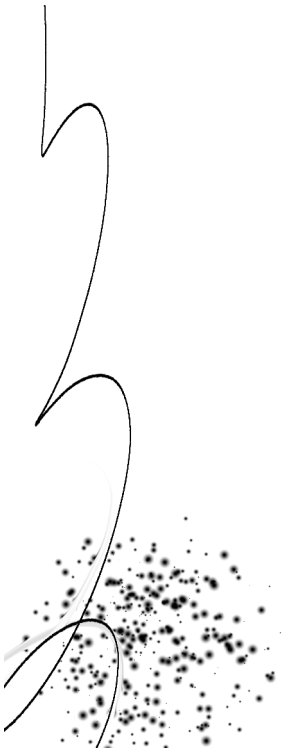
3 Start recording your script.

4 Make a simple painting on any subject matter. Feel free to change colors and use a variety of brushes and effects.

5 Save your script.

6 Play back your script, name your frame stack and watch Corel Painter create the animation.

7 Save your frame stack as a QuickTime movie.



Chapter 10

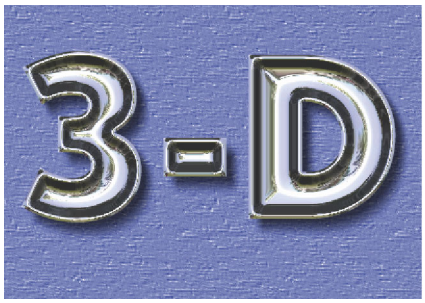
3-D Effects

Many animators today find themselves moving back and forth between their favorite 3-D program and a paint program for creating textures and bump maps that they will use in their 3-D creations. Earlier, in the "swordswoman" animation sample, we looked at using Corel Painter to create a background for a 3-D footage.

Corel Painter has tools that utilize 3-D principles in modeling, texture mapping and lighting. Although these models can't be exported into a 3-D program except as bitmaps, Corel Painter offers the tools to create a number of 3-D effects quickly and easily.

Working with Bevel World

Corel Painter itself has many tools that act similarly to tools in a 3-D program. The Bevel World dynamic plug-in is one of them.



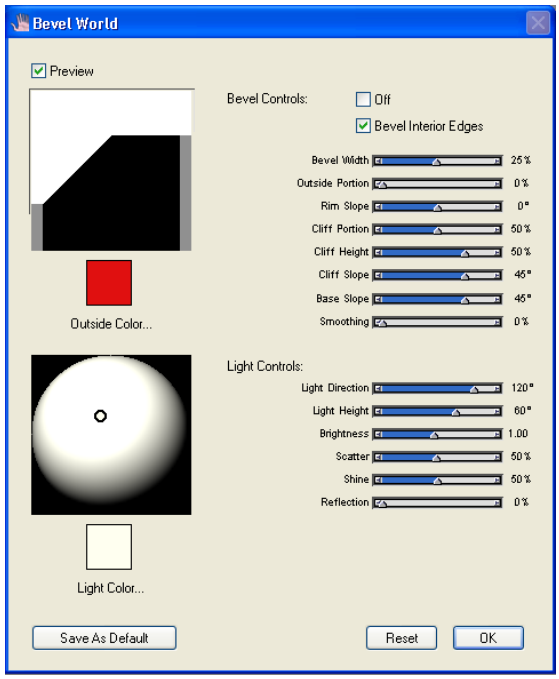
Example of 3-D letters created with Bevel World in Corel Painter.

Experiment with Bevel World

1 Open a new file, 640 x 480 at 72 ppi. Using the Rectangular Selection tool from the toolbox, select a square approximately 200 x 200 pixels.

2 Click the Dynamic Plug-Ins button at the bottom of the Layers palette and select Bevel World. The square selection becomes a new layer, and the Bevel World dialog box opens.

3 Experiment with the controls.



Bevel World controls

The Bevel World dialog box includes the following controls in the Bevel Controls area:

Preview — shows a real-time preview based on the options you set.

Off — prevents Corel Painter from applying the settings to the image. You can later turn the bevel back on by disabling the check box.

Bevel Interior Edges — lets you add beveling on the interior edges of the bevel area.

Bevel Width — describes the width of the bevel in relation to the layer diameter.

Outside Portion — controls the portion of the bevel that appears outside the layer.

Outside Color — determines the color of the outside portion of the bevel. This control applies only when Outside Portion is greater than zero. You can click the Outside Color chip and use the Color dialog box to set the color.

Rim Slope — specifies the angle of the rim (innermost portion) of the bevel.

Cliff Portion — describes the horizontal distance between the base and the rim.

Cliff Height — specifies the vertical distance between the base level and rim level.

Cliff Slope — describes the angle of the cliff (middle portion) of the bevel.

Base Slope — describes the angle of the base (outermost portion) of the bevel.

Smoothing — controls the roundness of the transitions between base, cliff, and rim, as well as the sharpness of the resulting ridges.

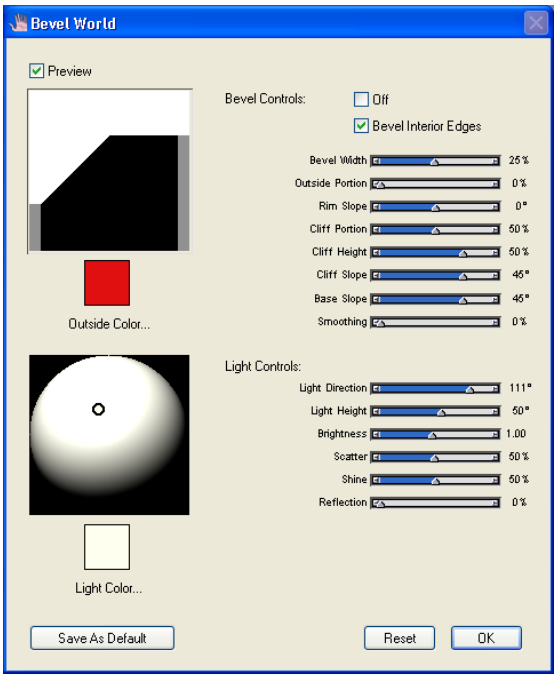
Create buttons for a Web page

1 Open a new file, 50 x 50 pixels at 72 ppi. Name it Buttonup.rif.

2 Choose Select > All to select the entire canvas.

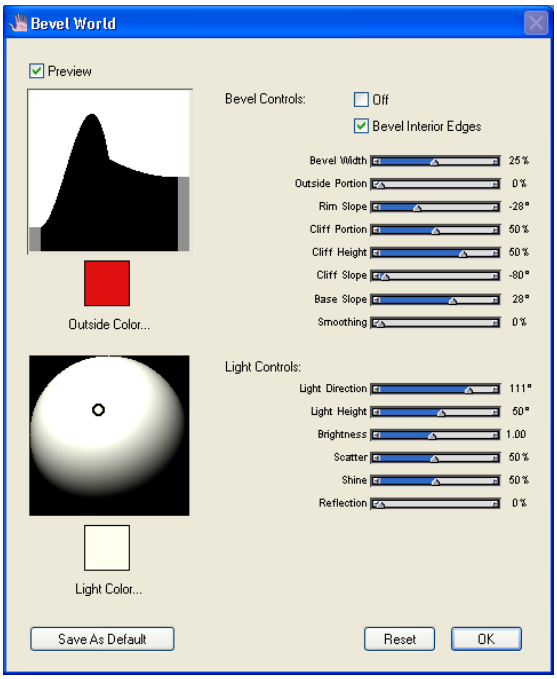
3 Click the Dynamic Plug-ins button at the bottom of the Layers palette, and select Bevel World.

4 Match the following settings:

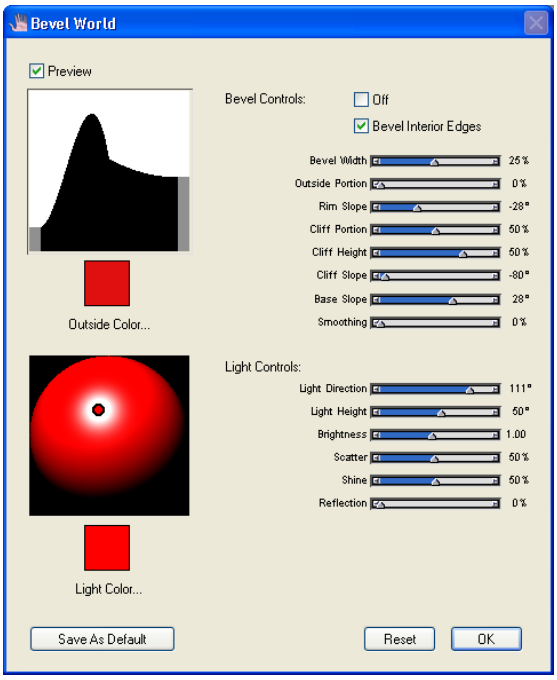


5 Click OK and save the file. You have created the "up" position for a button.

6 Repeat steps 1-3, call your new file Downbutton.rif, and match these settings:

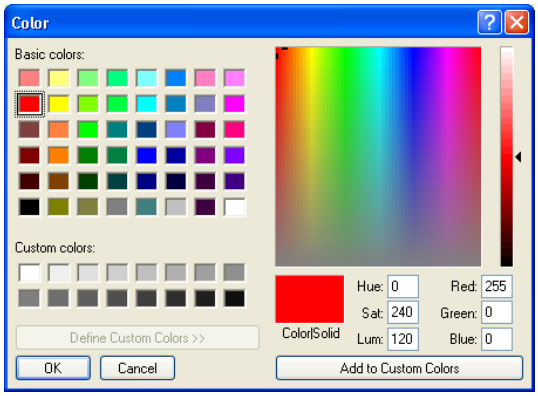


7 Repeat steps 1-3, call your new file Activebutton.rif, and match these settings to change the color of the button:



You can change the light color by clicking the Light Color chip and using the Color dialog box to set the color.

Refer to the Help in Corel Painter for detailed instructions on how to create rollovers with your buttons.



You should now have three buttons suitable for creating a rollover button that can show three different states.

Light controls

Lighting changes can make a huge difference in the 3-D appearance of the bevel. In addition to the light color, you can change the other properties of the light as well.

Light Direction — controls the light's angle. Moving the Light Direction slider rotates the light around the center. You can also change the light's angle by dragging the circle in the preview sphere.

Light Height— controls the light's position. With Light Height at maximum, the light shines straight down on the layer and the Light Direction setting has no effect.

Brightness — controls the light's intensity.

Scatter — adjusts the spread of the light's shine over the surface.

Shine — controls the prevalence of highlights.

Reflection — controls how much of the source image is visible in the bevel. If you are working with a clone, the clone source is mapped onto the surface at a variable percentage.

Creating texture maps for 3-D

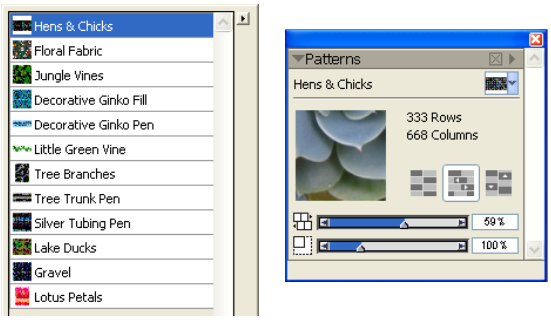
One of the most common tasks in texturing a 3-D model is to create a seamless tile. Corel Painter has some great tools for creating texture and tiling effects.

Patterns are created by repeating a rectangular image tile across an area. When you develop patterns, you're creating images that will be tiled. Ideally, those images must tile seamlessly. That is, the eye should not be able to distinguish tile edges. Corel Painter provides ways to help you generate images that will tile easily.

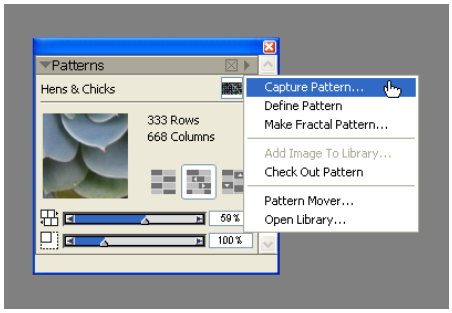
Create a seamless tile

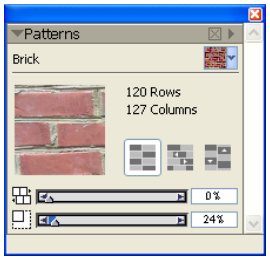
1 Open the Brick.jpg file and make a selection around some of the bricks.

2 Open the Pattern Selector in the toolbox, then click the menu arrow and choose Launch Palette to open the Patterns palette.



3 On the Patterns palette, click the palette menu arrow and choose Capture Pattern. Name the new pattern Brick.



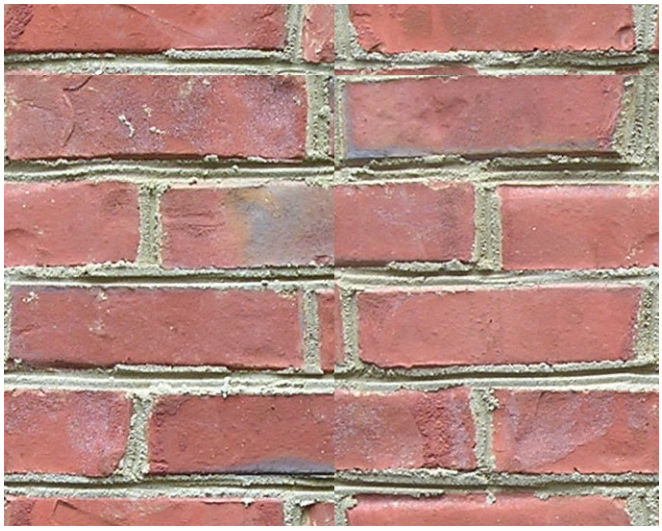


4 From the palette menu, choose Check Out Pattern. A document with your pattern will open, allowing you to edit the pattern.

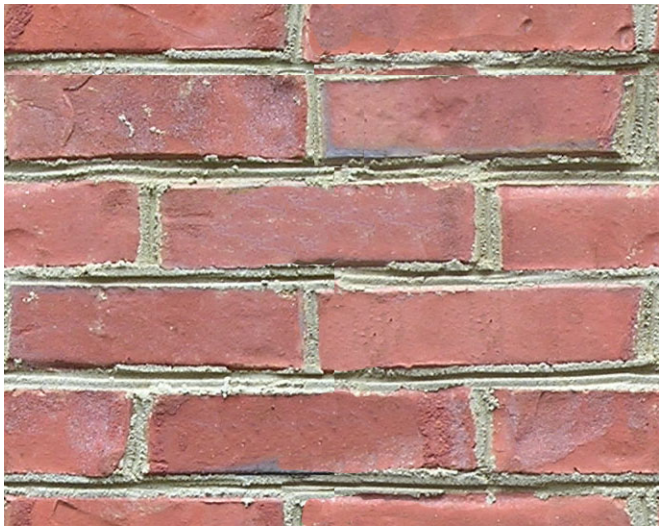
5 Select the Grabber tool from the toolbox and while holding down the Shift key, drag the image sideways. Where the edge of the image was,

Seamless tiles are great for Web page backgrounds. A single pattern tile is repeated by your Web browser to fill a background. This allows you to use a small file to create a large background!

a seam will appear, with another copy of the image attached to it. Drag the image in the document window to bring the seam to the middle.

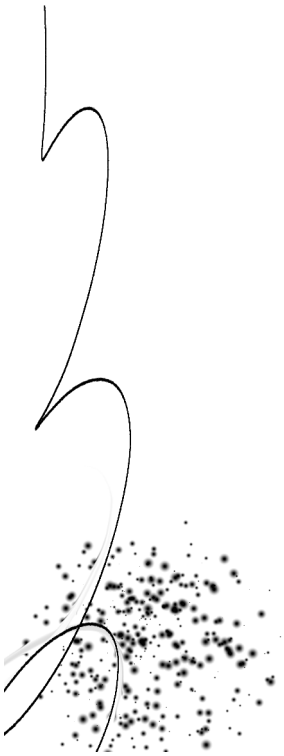


6 Using the cloning tools, touch up your pattern to eliminate the seam.

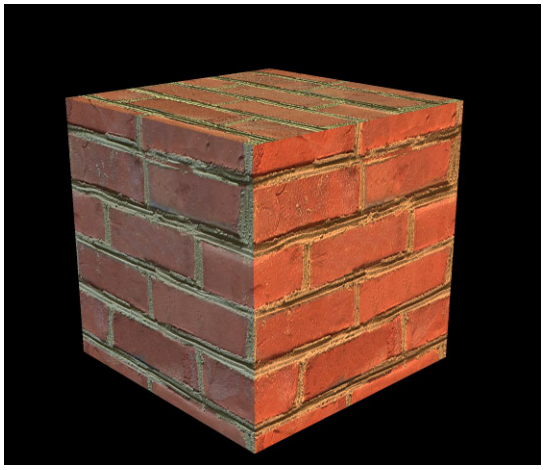


7 From the Patterns palette menu, choose Add Image To Library, and name the new pattern.

8 Open a new file and fill it with your seamless tile.



If you have access to a 3-D modeling program, create a simple model and apply your seamless tiled image as a texture map.



Using the Kaleidoscope dynamic plug-in

The Kaleidoscope dynamic plug-in in Corel Painter allows you to make seamless tiles from any type of source image with beautiful and unexpected results. This tool is simply fun to play with!

Create seamless tile with the Kaleidoscope

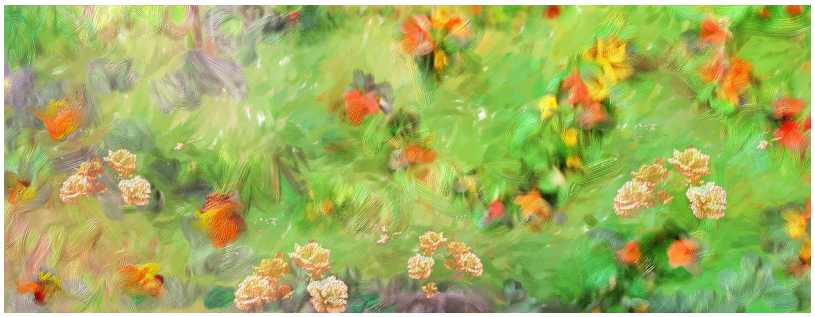
1 Open the file Lazyday.tif.

2 On the Layers palette, click the Dynamic Plug-ins button. Select Kaleidoscope and set the size to 200.

3 Move the kaleidoscope around until you have a tile you like.

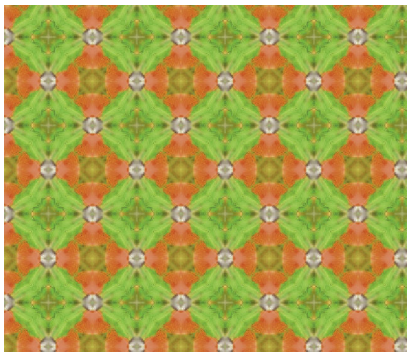
4 Open the Layers palette menu and choose Drop And Select. The kaleidoscope area becomes a selection.

5 On the Patterns palette, click the menu arrow and choose Capture Pattern. You have now created a seamless pattern that needs no retouching!



Lazyday painting created by Joyce Ryan in Corel Painter.

Think about the endless number of wallpaper and textile designs that can be quickly generated using the Kaleidoscope.



Each image was generated using the kaleidoscope tool over the same background to create a variety of patterns.

Assignment 8

Creating a movie with the Kaleidoscope

1 Open the Lazyday.tif file.

2 Create a new file, 200 x 200 at 72 ppi, and paste the Lazyday image into the new file.

3 Open the Scripts palette and start recording.

4 Press the left arrow key on the keyboard 10 times. Stop recording, and name the script Move.

5 Create a new frame stack with 30 frames, 200 x 200 pixels at 72 ppi, and paste the Lazyday image onto the first frame of the movie.

6 Choose Movie > Apply Script To Movie. Select the Move script and play back the script to move the background. Drop the Lazyday layer.

7 On the Layers palette, click the Dynamic Plug-ins button and select Kaleidoscope. Set the size to 200.

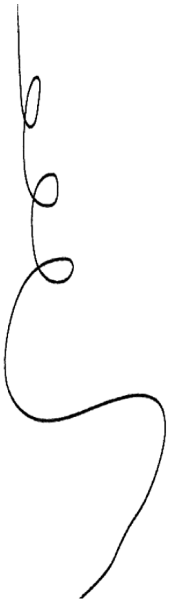
8 On the Frame Stacks palette, click the Step Forward button until you have reached the end of the stack, then drop the Kaleidoscope layer.

9 Play your movie!

10 Save the frame stack as a QuickTime movie.

Play the Kaleidoscope QuickTime movie.

Vocabulary



24-bit Color — Also called "true color." Specifically, 8 bits are allocated for each of the Red, Green and Blue values, permitting 256 levels of intensity per color. This translates into the ability to produce 16,777,216 different colors.

Alpha Channel — 32-bit graphics reserve 8 bits for transparency information (alpha channel), and 8 bits for each of the three RGB colors. Each element is represented by its own channel—Red, Green, Blue, and Alpha channels. Corel Painter allows up to 32 separate alpha channels. Alpha channels are also used to store masks and selections.

Animatic — An animatic is a moving storyboard, synchronized with audio, used to sell a concept for animation.

Aspect Ratio — Refers to the relative horizontal and vertical sizes of an image. For example, if a graphic has an aspect ratio of 2:1, this means that its width is twice as large as its height. When resizing graphics, it is important to maintain the aspect ratio to avoid changing the proportions of the image. Aspect ratio is also used to describe the dimensions of a display resolution. For example, a resolution of 800 x 600 has an aspect ratio of 4:3.

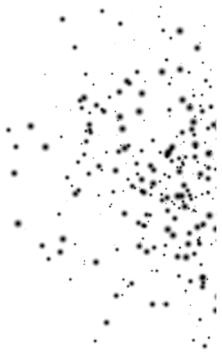
AVI — Short for Audio Video Interleave, the file format for Microsoft's video for Windows.

Bit Depth (Color Depth) — The number of colors that can be defined by a specific piece of hardware or software. The terms "color depth" and "bit depth" are used interchangeably. Color depth is sometimes described as bit depth because it is directly related to the number of bits used to define the color for each pixel.

Bitmap — Also referred to as a "raster image," a bitmap is an array (or grid) of pixels used to describe an image.

Cel — Traditionally, animation drawings were inked onto transparent sheets of celluloid or acetate called "cels." The cel was turned over and painted on the back with special "cel vinyl" paints, resulting in flat colors and an intact ink line.

Color Resolution — Color resolution represents the ability to reproduce fine color detail, or fine gradations between colors.



DPI — Dots per inch. The resolution of output devices (printers) is measured in DPI.

Field Guide — Traditionally, when animation is created on cels and shot with a camera, the area of the picture that is framed by the camera is known as the field size. Field guides (also called graticules) are used by animators to plot the proportions of artwork to film frame.

File Size — The amount of storage space, measured in kilobytes, that your file will take up on a storage device. Various file formats can compress a file so that it takes less space to store.

File Format — Files can be saved in a variety of formats, depending on the attributes needed. RIF is the Corel Painter native format, which retains special information about your document. For example, a RIF file maintains layers, so that you can return to the file to make changes to individual layers and elements.

Frame Stacks — In Corel Painter, digital video and animation files are known as movies or frame stacks.

Halftone Screen — Refers to a screen printed with a pattern of dots. A halftone screen must be applied to a continuous-tone image like a photograph or a painting to break up the image into dots for printing. The resolution of the halftone screen is designated as LPI (lines per inch).

LPI — Lines per inch. Also referred to as "screen frequency," "screen ruling," or "line screen." LPI refers to the number of dots or halftone cells per inch used to print grayscale images or color separations.

Pixel — Abbreviated from "picture element," it is the smallest discrete element of an image displayed on a monitor. Each pixel is made up of 3 phosphors, emitting red, green and blue. A single line of pixels arrayed in a row on a television screen makes a "raster line."

PPI — Pixels per inch.

QuickTime — Apple Computer's standard file format for integrating full-motion video and sound into application programs.

Raster — The set of horizontal lines composed of pixels, used to form an image on a television or monitor.

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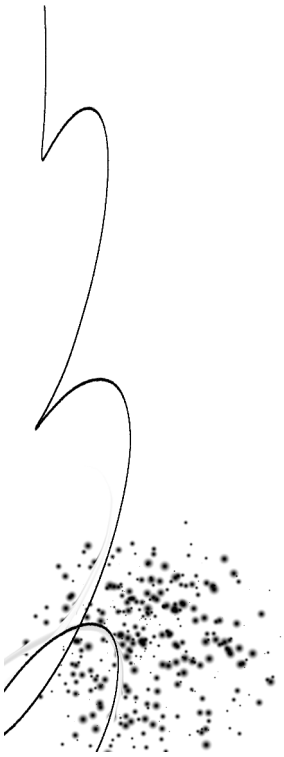

MADE BY HAND